Michigan Department of Agriculture

Pesticide & Plant Pest Management Division

Annual Report

2003

Kenneth J. Rauscher, Director
Phone: (517) 373-1087
www.michigan.gov/mda

Kenneth Rauscher, Director

The mission of the Pesticide and Plant Pest Management Division is to:

Protect human health and the environment, while fostering a diverse, viable Michigan agriculture.

INTRODUCTION

This annual report is a reflection of the work of the dedicated staff of the Pesticide and Plant Pest Management Division. This staff, through their regulatory and outreach activities, touches the lives of every citizen of Michigan. Our attention to agricultural product quality assurance provides a safe food and feed supply and provides a level playing field for producers and industry. Our regulation and management of plant pests facilitates interstate and international trade and protects the livelihood of producers by excluding and eradicating invasive, exotic pests. The Emerald Ash Borer (EAB), a destructive insect, native to eastern Asia, was first discovered in Michigan in the summer of 2002. EAB is providing many challenges as we develop and implement plans to control and eradicate this new invasive, exotic pest. The pesticide enforcement component of the division assures the availability of pest management tools while protecting the environment and human health. The division's fruit and vegetable inspection responsibilities assure proper produce grading, facilitates trade, and insures fair evaluation of fruit and vegetables for producers. As we address the diverse regulatory and outreach activities of the division, we are proud to serve the citizens of Michigan.

To better serve our constituents, industry, and the general public, Pesticide and Plant Pest Management Division Staff can be found in seven regional office locations throughout the state.

Region 1	Escanaba	(906) 228-9998
Region 2	Traverse City	(231) 922-5210
Region 3	Grand Rapids	(616) 356-0600
Region 4	Saginaw	(517) 758-1778
Region 5	St. Joseph	(616) 428-2575
Region 6	Lansing	(517) 335-1830
Region 7	Southfield	(248) 356-1701

Dan Wyant, MDA Director
Keith Creagh, MDA Deputy Director

Michigan Department of Agriculture
Pesticide & Plant Pest Management Division
PO Box 30017, Lansing, MI 48909
Ph: (517) 373-1087 Fax: (517) 335-4540
www.michigan.gov/mda

Table of Contents

PESTICIDE SECTION

The Pesticide Section of the Pesticide and Plant Pest Management Division (PPPM) is responsible for certification and registration of pesticide applicators, pesticide enforcement, commercial applicator licensing, worker protection, endangered species, pesticide registration, food safety and Food Quality Protection Act activities, bulk agri-chemical storage, restricted use pesticide dealer licensing, integrated pest management programs, and urban pesticide outreach activities.

The Pesticide Section is managed by the Pesticide Section Manager, and includes a Pesticide Enforcement Manager, Certification Manager, Registration Manager, Pesticide Programs Coordinator (includes worker protection (WPS) program, endangered species and USDA recordkeeping), Insect and Rodent Control Manager, and several administrative support staff.

PPPM field staff work among seven geographical regions and are supervised by regional supervisors. There is at least one staff person in each region that serves as a pesticide specialist to coordinate pesticide enforcement and certification activities for their respective regions. Six regions currently have enforcement, certification, and other pesticide program responsibilities divided between one or two pesticide specialists.

Inspection activities in the Pesticide Section include use/misuse investigations, inspections of producer establishments and marketplaces, restricted use pesticide dealer sales, commercial applicator records, food safety sampling, planned use inspections, and targeted WPS and urban initiative inspections.

Other activities include marketplace surveillance and contacts with applicators and dealers to ensure compliance with registration and licensing requirements. During FY03, PPPM continued to place a high priority on use/misuse investigations. Staff responded to the majority of pesticide misuse complaints with an initial contact within 24 hours of receipt of the complaint. Outputs and enforcement actions are reported quarterly to the Environmental Protection Agency (EPA) Region 5, pesticide specialists, and regional supervisors. This quarterly report provides a summary of outputs for the month and year-to-date, as well as the commitments under the annual EPA grant.

Legislative Activity

Senate Bill 360 (Act 82)

On July 23, 2003, Senate Bill 360 (Act 82) became effective increasing the fees associated with private applicator certification and registration. These fees increased from $10 every three years to $50 every three years. The fee increase was necessary to offset budget reductions scheduled to occur in fiscal year 2004.

This is the first fee increase for private certification/registration since the program was initiated in 1976 under Act 171, now Act 451, Part 83. Without the fee increases, PPPM anticipated the need to reduce such services as the popular recertification by seminar program, out of office (county) exam sessions, regional office exam sessions, and exam scoring and analysis information provided at the exam sites.

In June of 2002, the Legislature approved Senate Bill 989, part of which increased fees for commercial pesticide applicator certification and registration, restricted use pesticide dealer licensing, commercial pesticide applicator licensing, and pesticide product registration.

Pesticide Section Systems Automation Study

PPPM uses four primary computer systems within the Pesticide Section to support enforcement, certification –Pesticide Applicators Certification System (PACS), licensing-Certified Applicators Licensing System (CALS), registration – Pesticide Registration Tracking System (PRTS), and restricted use pesticide sales – Restricted Use Pesticide Licensing System (RUPS) programs. In addition to these core systems, there are several peripheral, yet critical, dependent and independent data systems including, the enforcement database that is used to track pesticide use investigations and inspections, sample data and license/certification status of individuals involved in enforcement cases.

Newly established directives have led the Pesticide Section to realize that while each of these systems is working within the scope of their program, sectionwide information sharing, product support, work-reduction, and web systems are not optimized. Further, many of these systems reside in obsolete platforms, making maintenance and enhancement difficult.

In FY02, PPPM used an outside contractor to conduct an automation study of the activities of the Pesticide Section and each of its programs. The goal was to develop a sectionwide suite of systems that will optimize data collection, transfer, and information sharing throughout the division, facilitate the needs of staff, network with outside users such as EPA and Michigan State University (MSU), and better serve our external customers.

In FY03, PPPM began the upgrade to the PACS system, including the purchase of eight optical scanners and one certification card printer (equipment purchased using EPA discretionary funding). Once completed in the second quarter of FY04, PPPM will begin upgrades to the CALS and RUPS program data systems, concluding with the development of a new enforcement data system.

E-Commerce

During FY03, PPPM responded to an issue raised by industry regarding the sale of agricultural pesticides over the Internet and from vendors located outside the state. The primary concern is that sales originating outside Michigan or those conducted over the Internet are not captured by registrants for payment of state groundwater fees. In addition, the emerging trend of farm buying groups raises the issue of uncertified applicator access to restricted use pesticides or the potential for repackaging pesticides. Pesticide product stewardship and potential environmental risks associated with receiving shipments at locations with minimal protective containment are also common concerns. PPPM is working to develop a strategy for monitoring Internet pesticide sales in general and to address industry concerns regarding groundwater fees.

Dacthal

On April 21, 2003, Dan Wyant, Director of the Michigan Department of Agriculture (MDA), signed a cancellation order affecting three herbicides that contain the active ingredient, Dimethyl tetrachloroterephthalate, (DCPA). DCPA, also known by the trade name Dacthal, may no longer be distributed, sold or used in Michigan.

The reason for this action was based on recent detection of a DCPA metabolite in groundwater at several Michigan locations. MDA, in cooperation with the Michigan Department of Environmental Quality (MDEQ), have been testing groundwater at these locations to determine the extent of the contamination. The largest area impacted is Coloma Township near Coloma, Michigan where 265 of 875 wells tested have detectable levels of the metabolite, and 43 of those exceed health advisory levels, requiring MDEQ to provide an alternate drinking water supply. In addition to the Coloma Township location, nine additional groundwater sample sites in Michigan have confirmed detection of the DCPA metabolite.

Historically, herbicides containing DCPA were used in these areas on both agricultural and residential sites. MDA investigated potential causes for the environmental contamination and determined that no specific incident (spill or dumping) could be determined, so it appears that historical use of the product caused the eventual leaching into groundwater.

ENFORCEMENT ACTIVITIES

The enforcement program oversees inspection and investigation activities for the Pesticide Section. These activities include:

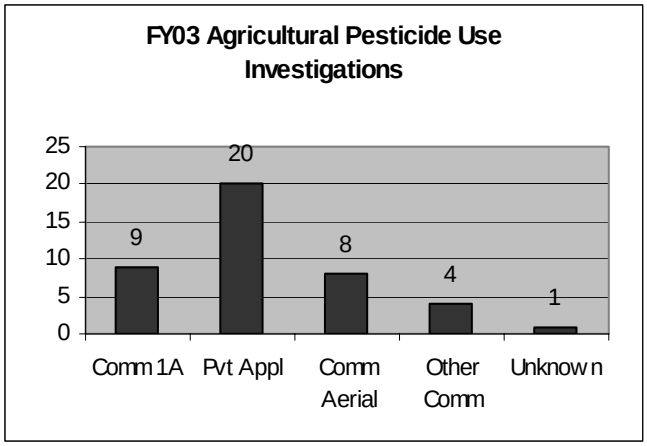
- Conducting pesticide use/misuse investigations.
- Inspecting pesticide-producing establishments and places where pesticides are sold.
- Auditing of restricted use pesticide (RUP) dealer sales and commercial applicator records.
- Addressing pesticide use violations related to food safety and farm worker protection.
- Implementing federal and state targeted compliance monitoring initiatives.

Other enforcement activities include marketplace surveillance for unregistered pesticides and proper pesticide labeling, contacts with applicators and RUP dealers to assure compliance with certification and licensing requirements, and special projects, like integrated pest management (IPM) requirements in schools and the federal urban initiative.

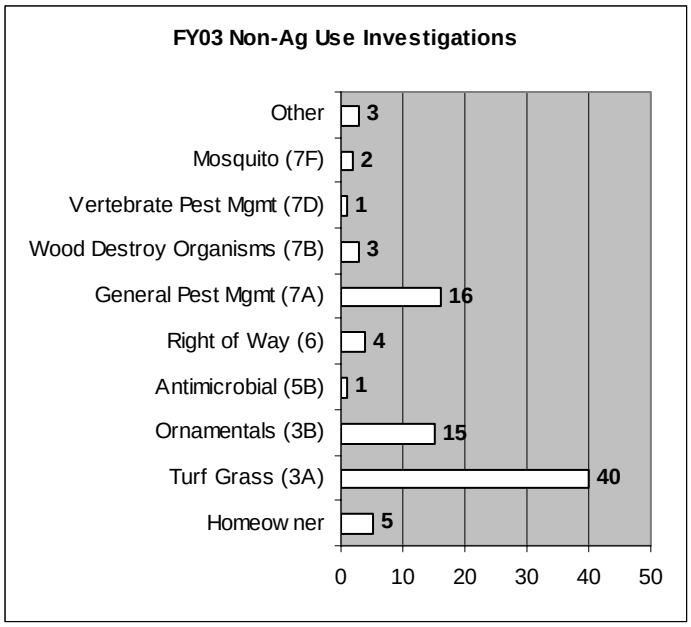
Use Investigations

PPPM conducted 132 pesticide use investigations (UIs), with 42 occurring in agricultural situations and 90 occurring

in non-agricultural situations. Of the 42 agricultural use investigations, 21 involved commercial applicator firms (8 aerial application firms and 2 RUP dealers); 20 investigations involved private applicators (5 unknown applicators, 6 not certified); and 1 investigation was unknown.



Of the 90 Non-Ag UIs, 5 involved homeowners and 85 involved commercial applicators in the following categories:

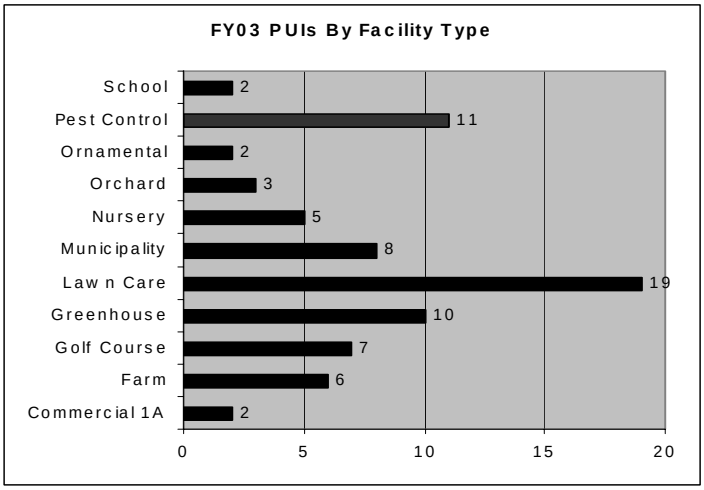


The number of complaints filed with PPPM in FY03 continued a downward trend with a 22% reduction from the 169 complaints investigated in FY02**.**

Supplemental Environmental Projects

Occasionally, firms found to be in violation of state pesticide use regulations voluntarily choose to sponsor supplemental environmental projects as part of their civil penalty. The following projects were sponsored as a result of penalties assessed in FY03:

- $3,125 was directed to MSU/Pesticide Education Program where it was used to complete the translation of the pesticide core manual into Spanish.
- $1,000 was directed to the Kalamazoo County Nature Center to assist its volunteers with the collection of wild migratory bird blood samples to detect St. Louis Encephalitis, Eastern Equine Encephalitis, and West Nile Virus.

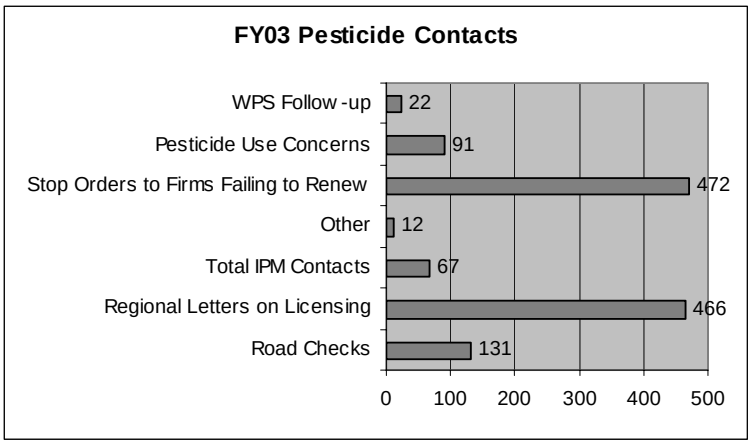


Planned Use Inspections

PPPM conducted 75 Planned Use Inspections (PUIs) in FY03. There were 26 agricultural PUIs; 22 involved private applicators, and 4 were with commercial firms. PPPM conducted 49 PUIs at non-agricultural sites, 32 of which were conducted at commercial pesticide application firms.

Pesticide Contacts

A total of 1,261 targeted inspections were conducted in FY03 focusing on specific pesticide use activities, road check inspections, informational contacts, compliance assistance and outreach, and monitoring for compliance with state regulatory requirements. Some contacts contained specific orders to stop prohibited conduct such as failure to renew the firm's commercial pesticide applicator license.



During the outdoor application season, PPPM conducted 131 road check inspections. Most of these inspections involved the observation of a pesticide application. At a minimum, PPPM inspects the application equipment and applicator records along with conducting a comprehensive interview with the applicator. The focus of the inspection is to identify that the firm is in compliance with Act 451, Part 83 and Regulations 636 and 637.

From FY03 contacts, PPPM issued 614 Stop Prohibited Conduct Orders, 35 warning letters, 18 advisory letters, and 13 Notices of Intent.

Producer Establishment Inspections

PPPM staff conducted 50 Pesticide Producer Establishment Inspections (PEIs). Twenty-one (21) inspections were conducted at bulk repackagers. Sixteen (16) inspections specifically included federal worker protection standard (WPS) product label reviews for a total of 70 pesticide product label reviews. Eighteen (18) inspections specifically targeted antimicrobial pesticides with a total of 38 different documentary samples collected for label reviews and 9 formulation samples collected for analysis (part of a national EPA anti-microbial initiative).

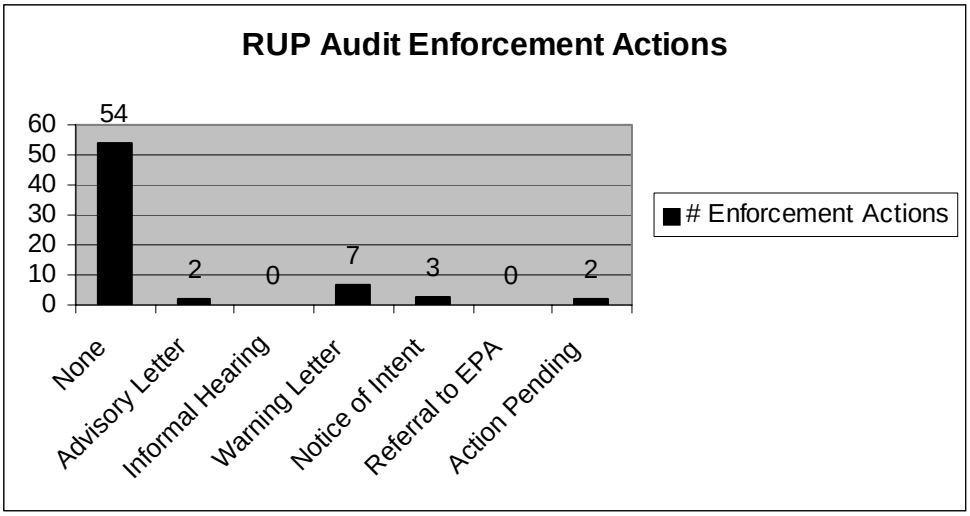
Federal Marketplace Inspections

During FY03, PPPM conducted 21 federal Marketplace Inspections (MPIs). Three inspections focused on WPS product label review and another three focused on antimicrobial product label review and product sampling. The remaining inspections focused on federal product registration and labeling requirements.

RESTRICTED USE PESTICIDES (RUP)

RUP Dealer Audits

PPPM conducted 68 RUP dealer audits in FY03. Fourteen (14) enforcement actions were issued or recommended (see table). In addition, PPPM conducted 50 initial inventories of restricted use pesticides at dealer sites to facilitate audits in FY04. The total number of dealers licensed decreased from 275 in FY02 to 274 in FY03.



WORKER PROTECTION STANDARD ACTIVITIES

PPPM continues to work within the framework of the State Implementation Plan for the Worker Protection Standard (WPS). The plan contains Michigan's strategy for development of cooperative relationships, compliance monitoring, and enforcement. PPPM staff continues to provide WPS compliance assistance during inspection activities, but has conducted enforcement actions in response to detecting WPS violations.

In FY03 PPPM conducted 26 WPS planned use inspections at farms, nurseries, greenhouses, and commercial pesticide operations. In addition, PPPM conducted 22 WPS pesticide contact inspections as follow up and closure to previous WPS PUIs.

PPPM participated or conducted 4 WPS presentations, including approved trainer programs. Outreach activities are essential to reach the diverse groups impacted by the WPS or who are interested in learning about WPS. These activities were sponsored or coordinated by PPPM, MSU Extension (MSUE), farm organizations, and commodity groups.

In FY03, PPPM participated with local farm worker organizations to promote and implement, the first of its kind in the Nation, "Michigan Farm Worker Appreciation Month." The goal was to formally thank and recognize the sacrifices that thousands of migrant farm worker families make in order to ensure that Michigan families have a bountiful supply of fruits and vegetables, and to highlight the benefits these populations bring to the State of Michigan.

INTEGRATED PEST MANAGEMENT

The Natural Resources and Environmental Protection Act, Act 451, Part 83, as amended, and Regulation 637 set forth requirements for use of Integrated Pest Management (IPM) practices in schools, health care facilities, and public buildings. These requirements include provisions for pesticide applicator attendance at an approved IPM training program and verifiable IPM programs for buildings.

To assist pesticide applicators with compliance, the Michigan Pest Control Association (MPCA) and PPPM developed a joint IPM training program. In FY03 this training program was offered twice in Detroit and once in Traverse City with a total of 75 people in attendance. Participants attending the training programs included representatives from health care facilities, schools, public buildings, and the pest control industry.

PPPM conducted 64 IPM inspections to determine compliance with Regulation 637. As a result of these inspections, 3 warning letters, 4 advisory letters and 3 stop prohibited conduct orders were issued.

In FY03, PPPM completed the development of an IPM study manual that will be accessible through the Internet and the MDA Intranet. PPPM also began development of an on-line IPM training program that will use the new manual in conjunction with an on-line exam. The objectives of this program are to:

- Improve compliance with state law by subject firms/institutions.
- Increase efficiency by providing training to a large numbers of individuals using minimum staff.
- Provide a convenient means for applicators to obtain the required training.
- Reduce expenses (man-hours, travel, printed materials, etc.)
- Provide training that is up-to-date and that can be easily modified.
- Create a database of IPM-trained pesticide applicators that is accessible to the general public and various agencies.
- Provide immediate feed back on the level of comprehension of the subject matter.

URBAN PESTICIDE EDUCATION PROGRAM

PPPM developed and implemented the Benton Harbor School District Integrated Pest Management program, the goal of which was to enhance the educational environment and learning experience through the elimination of major pests and health problems within the school district. The following was accomplished in FY03:

1. Developed Benton Harbor Integrated Pest Management Program.
2. Established contact with Benton Harbor School District.
3. Identified roles and responsibilities.
4. Developed three Benton Harbor IPM training programs:
   a. General IPM training.
   b. Cockroach training
   c. Awareness training (teachers and support staff).

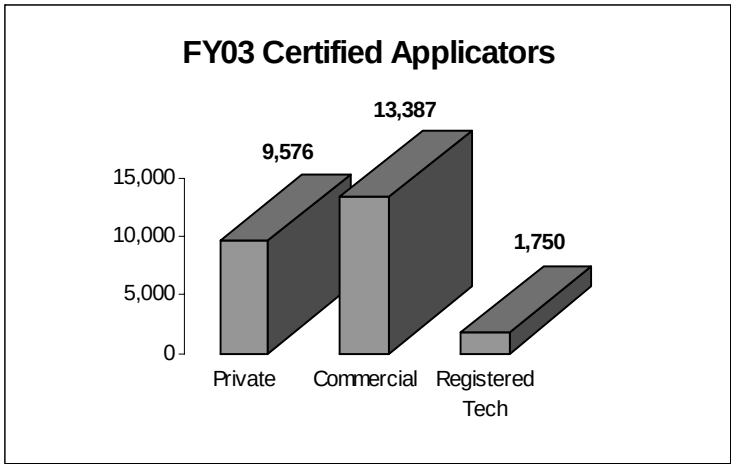
PPPM participated in the Parents Together community environmental health awareness day. Information on IPM, pesticide safety, and pest and human health was distributed to over 200 residents.

The Saginaw IPM program conducted their third annual IPM Parade Clean Up Day. The purpose of this event is to enhance the awareness of pest harborage areas and coordinate efforts among residents to clean up neighborhood debris.

CERTIFICATION ACTIVITIES

MDA is responsible for primacy enforcement and implementation of pesticide applicator certification required by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA requires that applicators using or supervising the use of restricted use pesticides (RUPs) must be certified.

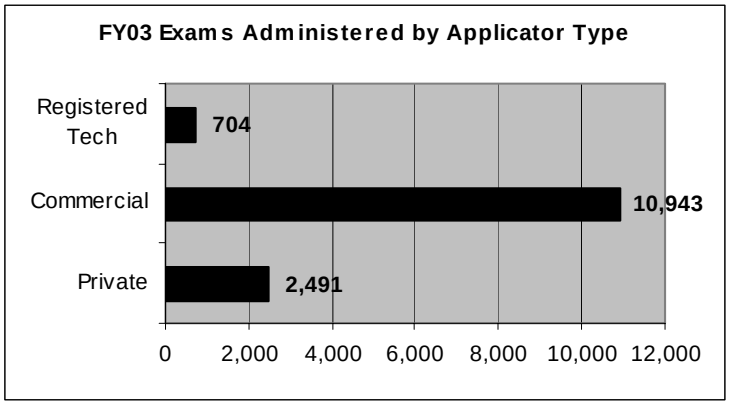
Currently there are nearly 25,000 pesticide applicators that are either certified or registered in Michigan. The chart (right) illustrates the number of pesticide applicators by type.



Exam Activity

PPPM administers pesticide applicator exams to commercial, private, and registered applicators. The following summarizes PPPM's exam activity for FY03.

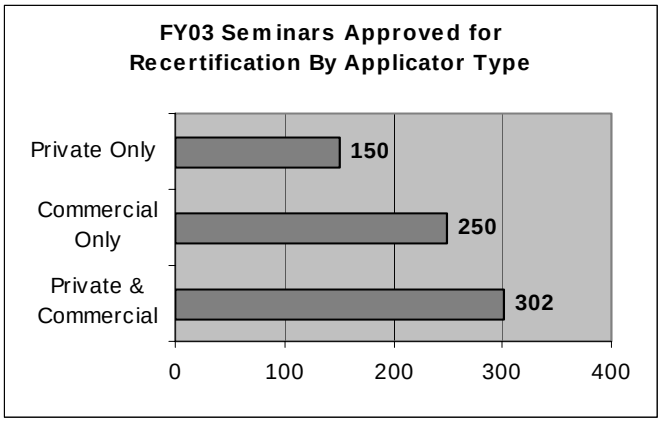
During FY03, PPPM administered a total of 14,138 pesticide applicator exams, including repeat exam attempts, to private, commercial, and registered applicators throughout the state. This figure represents both initial exams administered to applicants becoming certified/registered for the first time and renewal exams administered to applicants renewing their credentials.



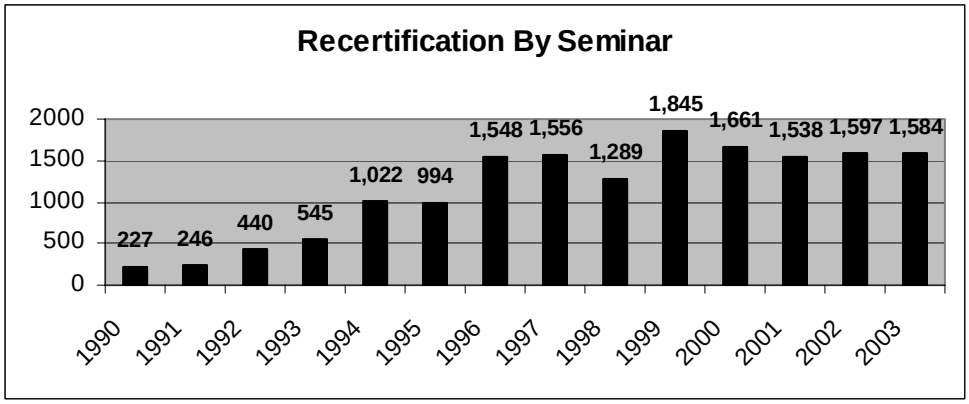
Pesticide applicator exams are administered by PPPM at various locations including PPPM regional offices, county extension offices, and other specially coordinated exam locations. During FY03, exams were given during 323 regional office exam sessions and 136 non-regional office exam sessions, ie extension offices, private firms, etc.

Recertification

PPPM reviews seminars offered nationally and within the state for approval under the recertification by seminar attendance program. The number of seminars approved for credits (continuing education) continues to increase each year demonstrating the growing popularity of this option for certification and registration renewal. In FY03, PPPM approved 702 seminars for recertification credits. The following chart identifies the number of seminars approved per applicator type:



The popularity of the recertification by seminar attendance program has increased considerably since its implementation in 1989. This chart identifies the number of certified applicators that have renewed their certification credential by seminar credits each fiscal year since the program began. In FY03, 1,584 applicators renewed their credentials in this manner.



Pesticide Applicator Certification Reciprocal Agreement

In September 2003, a reciprocal agreement between the Michigan Agri-Business Association (MABA) and MDA was implemented to approve pesticide applicator training programs for recertification credits. In previous years, both MDA and MABA reviewed the same programs awarding pesticide applicator recertification or certified crop advisor (CCA) education credits. Beginning in September 2003, MDA and MABA began sharing the workload and each can now approve training programs for either recertification or CCA credits.

The reciprocal agreement recognizes the types of educational training that share common elements approved by both programs and requires the applicant to submit training topics/agendas for review no less than 30 days prior to the training date. The two agencies will notify each other so that the trainer/host receives directions from each agency on how to submit information after the training program is completed. The goal is for each agency to experience a reduction in overall workload while providing trainers/hosts with expedited approval.

PESTICIDE REGISTRATION

FIFRA Section 18 Exemptions, 24(c) Registrations and EUPs

Section 18 of FIFRA allows states to request from EPA, the use of an unregistered pesticide to control an emergency pest problem within the state. When an emergency situation develops, an MSUE specialist petitions MDA for a Section 18 emergency exemption. PPPM evaluates the situation to see if it meets Section 18 criteria and, if so, works with the extension specialist to develop the Section 18 exemption request. In FY03, PPPM reviewed and prepared 17 Section 18 specific exemption requests for submission to EPA. Sixteen of these requests were granted and one was withdrawn. In addition, PPPM issued 2 Section 18 crisis exemptions.

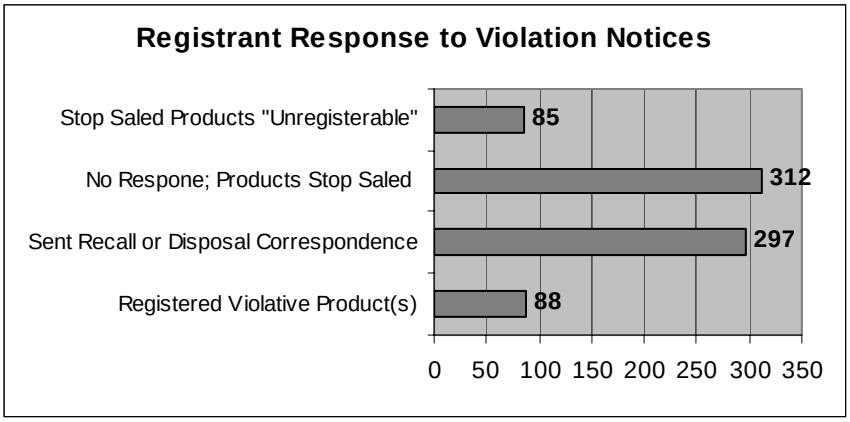
Section 24(c) of FIFRA allows states to issue registrations for additional sites or changes in use patterns for federally registered pesticides as long as a special local need (SLN) exists. An SLN means a pest problem within the state that PPPM has determined that an appropriate federally registered pesticide product is not sufficiently available. PPPM does not approve these registrations when registered alternatives exist or the residue data do not support the registration. PPPM issued four 24(c) registrations in FY03, however, one of the 24(c) requests was revoked by EPA.

Section 5 of FIFRA allows pesticide registrants to obtain a permit from EPA to do experimental trials in the states that they would like to seek registration. PPPM requires registrants to submit a summary of the experimental program as well as the names and locations of the cooperators within the state. PPPM collected information on four experimental use permits (EUPs) for use during FY03.

State Marketplace Inspections

PPPM inspectors conducted 141 state marketplace inspections in FY03 resulting in violation notices being issued to 209 registrants for 782 products. PPPM registered 88 new products as a result of violation notices. Based upon the results of the inspections in FY03, 125 out of 141 (88%) of all inspection locations had one or more products offered for sale that were not currently registered with the State of Michigan.

Fifty-four (54) Notices of Intent (NOIs) totaling $19,450 were issued to pesticide registrants for non-renewal of products.



Chlorpyrifos

In FY03, PPPM conducted a study of chlorpyrifos products remaining in the marketplace. The study focused marketplace inspections in different location types such as hardware stores, surplus stores, garden centers, and farm centers. The goal was to ascertain the effectiveness of EPA communication regarding cancellation of pesticide products in the various location types.

The results of the limited project showed that approximately 83% of the inspected pet supply centers and surplus stores had cancelled chlorpyrifos products on the shelves. The next highest number of "hits" were hardware stores (35), farm centers/elevators (27), and garden centers (27). While this is not a statistically valid survey, it is an indication as to the need for communicating federal cancellation actions directly to end point distributors.

ENDANGERED SPECIES

In FY03, PPPM continued to address concerns about endangered species through identification of sensitive habitats during special pesticide registration review. PPPM also continued to consult with the US Fisheries and Wildlife Service (FWS) on registrations of concern to ensure that application of pesticides would not impact known sensitive habitats.

PPPM met with FWS representatives and MSUE to discuss future activities related to endangered species protection in Michigan. This meeting provided the foundation for a project detailed in the FY04 EPA Performance Partnership Grant agreement application, wherein PPPM and MSUE will cooperatively develop a clearinghouse for all state information related to the federal endangered species program. The meeting also provided an opportunity to review federal and state programs, reinforce cooperative relationships, and discover various information resources.

INSECT AND RODENT PROGRAM

Pesticide Notification Registry

PPPM completed and published the FY03 Pesticide Notification Registry. A total of 82 contact persons appear on this registry, which identifies 3,240 properties (statewide) that are either adjacent or additional properties requiring applicators to notify a contact person on the registry.

Certified Organic Farm Registry Update

PPPM completed and published the FY03 Certified Organic Farms Registry. The registry is in effect for one year (March 15, 2003 to March 15, 2004). A total of 301 organic farm parcels (19,842 acres) are found in this registry. The 2003 registry identifies 28 Michigan counties. First time applications and renewal application packages for the FY04 registry are now available on the MDA website.

West Nile Virus Working Core Group Update

Michigan has a working core group of individuals that coordinate the state West Nile Virus (WNV) surveillance and response activities. This core group has representation from the Michigan Department of Natural

Resources, Michigan Department of Community Health, Michigan Department of Environmental Quality, Michigan Department of Agriculture, and Michigan State University. In January 2003, this core group developed a state website that allows citizens to report dead birds and other animals suspected of having WNV. This website is updated weekly and has other web links that help keep Michigan residents updated on WNV issues and activities.

West Nile Virus Activities

Campground Meeting

MDA staff, local health and township officials, and the Michigan Department of Environmental Quality presented information and options for mosquito control to 40 campground owners and managers at a meeting held in Brooklyn, Michigan on April 8, 2003. Brooklyn is home of the Michigan International Speedway, that attracts thousands of NASCAR racing car fans to local campgrounds throughout the summer months. Local campground owners were interested in mosquito abatement programs due to the high number of human cases and deaths associated with WNV in 2002.

Bird Sera Testing

MDA coordinated bird sera collection and testing efforts with the Kalamazoo Nature Center and Bay County Mosquito Control to submit wild bird blood samples from captured birds in Bay and Kalamazoo Counties during the summer of 2003. Michigan State University (MSU) analyzed the samples for arbovirus (St. Louis Encephalitis and Eastern Equine Encephalitis) diseases. The Kalamazoo Nature Center identified a total of 13 positive birds with arbovirus infections other than WNV. Eleven (11) of these birds were EEE positive, one was SLE positive, and one was positive for both SLE and EEE. The Bay County Mosquito Control agency also detected arbovirus activity in wild birds from their county.

Communities Mosquito Abatement Efforts

PPPM staff worked together to develop a list of communities in Michigan that conducted mosquito abatement efforts that included pesticide applications. PPPM regional offices conducted several planned use inspections with commercial firms and communities conducting these programs in an effort to minimize potential issues associated with pesticide use. PPPM's efforts assisted communities to comply with label use and applicator certification requirements and avoided potential federal violations associated with repackaging pesticides (larvicides) for distribution to homeowners.

West Nile Virus Workshops for Local Health Department Staff and Community Leaders

MDA hosted or assisted in five workshops related to WNV. These workshops provided a wide range of information to various target audiences. Three meetings were held in southeast Michigan counties to train city and township managers on arbovirus surveillance, abatement, and regulatory issues. On April 23, 2003, a statewide meeting for over 400 participants was held to provide similar information to the general public, community leaders, veterinarians, local health department staff, and commercial pesticide applicator businesses. The fifth meeting was coordinated with the Michigan Mosquito Control Association, and the target audience was mosquito abatement firms and communities considering some form of mosquito abatement activity in 2003.

Arbovirus Surveillance Program

MDA continued the state arbovirus surveillance program to detect the presence of WNV, SLE, and EEE activity during the 2003 mosquito season. Surveillance efforts were centered around mosquito captures and wild bird sera sample testing collected by local health department personnel, local community governments, and county mosquito abatement agencies. In addition, this program worked out a cooperative agreement with MSU to provide testing services for all of the collected samples.

PLANT INDUSTRY SECTION

FRUIT AND VEGETABLE INSPECTION PROGRAMS

The Fruit and Vegetable (F&V) Inspection programs provide an unbiased, third party inspection service for the produce industry worldwide. Inspections are based on US Department of Agriculture (USDA) standards, Michigan standards, processor specification, and/or industry needs. In general, the inspection program is voluntary. However, export, school lunch, government purchase, and federal diversion programs require mandatory inspections. All F&V staff are licensed by USDA on commodities they inspect.

Shipping Point Inspections

Shipping point inspections verify quality and condition of produce prior to shipment. Inspections performed for the industry are a marketing tool, which assures the produce being shipped meets the grade marked on containers and bags. Some shipping point inspections are mandatory such as exports, school lunch program, and government purchases. Without this type of inspection, Michigan shippers would not be able to participate in the above programs. USDA grades are recognized worldwide and are used to determine the value of produce.

Michigan has ten USDA licensed inspectors who performed 3,211 shipping point inspections for 115,146,784 pounds of produce prior to shipment, including the summer potato harvest in the Munger area generating 649 inspections for 21,289,000 pounds of potatoes.

Market Inspections

Michigan has six F&V inspectors and supervisors licensed to inspect incoming market loads of produce. This produce enters Michigan from anywhere in the world. Five of the above market inspectors are licensed to inspect all fruits and vegetables and one has a restricted license limiting the commodities they can inspect. During FY03, PPPM conducted 932 market inspections for 16,930,204 pounds of produce.

Process Inspections

Twenty-nine (29) temporary inspectors and some full-time inspectors/supervisors, using USDA standards or processor specifications, performed 13,392 process inspections. Temporary inspectors receive on-site training by experienced inspectors and classroom training and testing when possible. USDA requires that inspectors be licensed on each commodity prior to conducting independent inspections. During FY03, process inspections were conducted on 476,656,168 pounds apples, blueberries, red tart cherries, grapes, and peppers destined for processing in Michigan, Canada, Pennsylvania, and New York. Unfortunately, the weather dealt Michigan tart cherry farmers another devastating blow this year with 50% loss of their crop.

For the second year in a row, process grape growers experienced a major crop failure with production down considerably due to adverse weather conditions. During FY03, PPPM performed 2,069 inspections involving 324,352,896 pounds of process grapes.

Controlled Atmosphere Storage Licensing Program

During calendar year 2003, controlled atmosphere storage operators requested inspections on 197 rooms containing 134,263,000 pounds of apples. PPPM conducted inspections and issued licenses for 181 rooms that met the requirement of Act 228, as amended, for 32 controlled atmosphere storage operators. During the inspection process, three controlled atmosphere storage rooms failed to meet requirements of the act and 13 rooms were opened early.

Phytosanitary Inspections

Phytosanitary inspections were conducted on 47 exports this year consisting of 1,884,962 pounds of apples, dry edible beans, seed potatoes, and blueberries. Most importing countries limit the amount of insects and diseases allowed on incoming produce. Certificates were issued for the following countries: Belgium, Canada, Costa Rica, El Salvador, Guatemala, Switzerland, Sweden, Dominican Republic, and the United Kingdom.

Wholesale Potato Dealer Licensing Program

PPPM issued 22 licenses through the wholesale potato dealer licensing program in FY03. This program protects Michigan potato growers in case a wholesale potato dealer fails to pay for potatoes purchased. PPPM requires wholesale potato dealers to post a bond or letter of credit as a condition of licensing. No complaints were received during FY03.

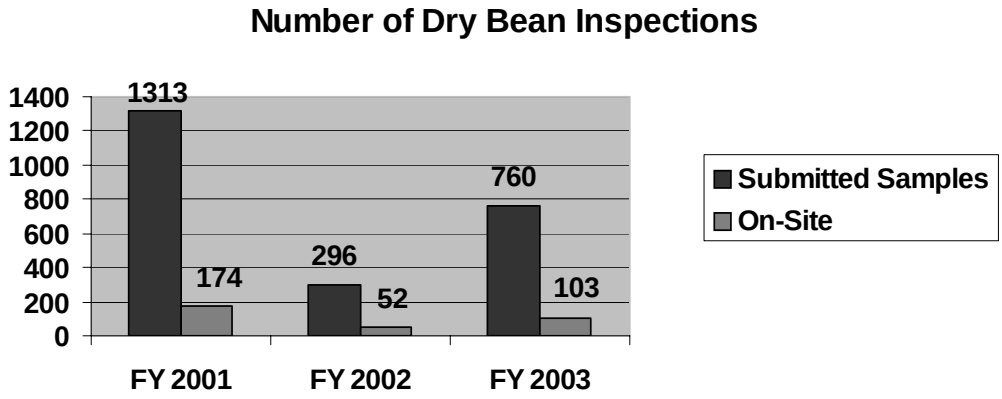
Seed Potato Inspection

Eighteen (18) Michigan farmers produced 2,600 acres of seed potatoes. During FY03, F&V inspectors conducted 1,015 inspections on approximately 33,269,288 pounds of seed potatoes. Quality seed is one of the most important ingredients to total potato production. Michigan seed farmers continue to shift to raising mainly "chip" type varieties. During the past three years, the Michigan Seed Potato Association (MSPA) has worked on a program to reduce bruising at the farms. Participating farms have implemented the recommended changes and have noted decreased bruising.

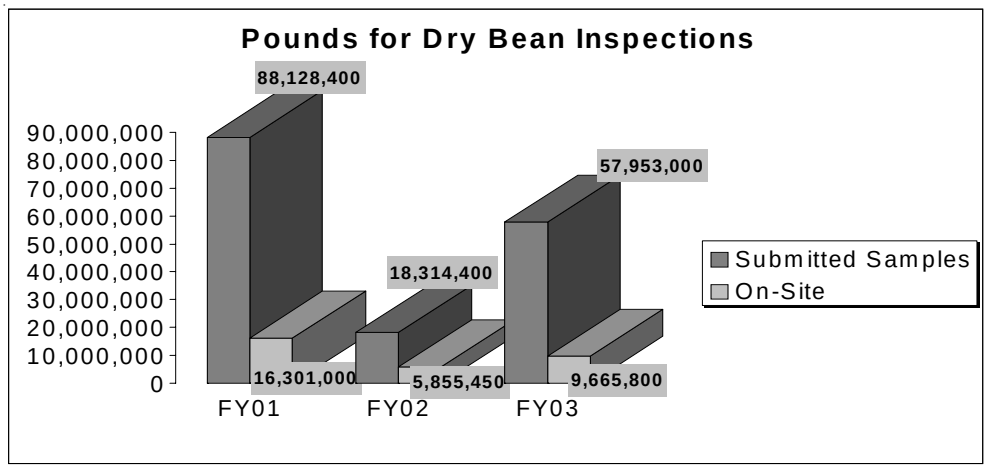
Dry Bean Inspection Program

The dry edible bean inspection program had increased usage of this service in FY03 due to the good quality of the harvested crop. The dry bean inspector issued 863 certificates during FY03, compared to 348 certificates issued during FY02. Beans destined for Mexico are sold on a permit basis and only a certain amount of permits are auctioned each year. The quota was filled at the end of September 2003 and the next auction is March of 2004.

The estimated yield for 2003 was 1,500 pounds per acre from a 190,000 acre crop, compared to 1,750 pounds per acre from a 260,000 acre crop in 2002, and a previous five-year average of 1,510 pounds from 263,000 acres. This year's crop yielded an estimated 285 million pounds and 455 million pounds in 2002, compared to the five-year average of 432 million pounds. The total acreage of dry beans planted in Michigan continues to decline due to low prices.



The yields in FY03 were down due to lack of moisture at the end of the growing season. The quality was very good but the size of the beans was small. This could be a potential problem in marketing the crop because most purchasers of colored beans prefer a big bean.



Michigan Organic Registration Program

PPPM met with the Organic Advisory Committee (OAC) several times during this year. The OAC consists of 11 members representing organic producers, retail food establishments, processors, input suppliers, and consumers. In addition to the above members, there are several ex-officio members from MSU, USDA, an environmental constituent, and MDA staff who attend the meetings. The OAC is responsible for advising the MDA director on issues that may impact the organic industry.

PPPM updated the organic portion of the MDA web site throughout the year by posting OAC meeting dates; minutes; member list; and certifying agent, handler/producer registration information, and cost-share information.

PPPM continues to work with the National Organic Program (NOP/USDA) to receive approval of the state organic program. All states that have a state organic program are required to apply to the NOP/USDA and once approved, will be responsible for the enforcement of the state and some of the federal program. To date, NOP/USDA has not approved any state organic program. Act 316, Michigan Organic Products Act, has several areas that require amendments or justification for more restrictive requirements prior to receiving approval from NOP/USDA. Michigan requires registration of certifying agents, handlers, and producers, which is a more restrictive requirement than the federal law. The federal law exempts producers and handlers with retail sales between $0-5,000 from certification, while Michigan's law does not. MDA, the Michigan organic industry, and the OAC support the more stringent state requirements. If the more restrictive requirements in Michigan's law are not approved by NOP/USDA, Act 316 must be amended to bring it into compliance with the federal law.

Michigan law requires registration of certifying agents, handlers, and producers. During FY03, PPPM registered 8 organic certifying agents and 60 organic handlers and producers.

PPPM also participated in a federal organic cost-share reimbursement program and distributed approximately $16,158 to 44 organic producers and handlers during FY03. This program reimbursed organic handlers/producers for up to 75% of the cost of certification not to exceed $500. Organic handlers/producers were required to submit an application along with the required support documentation to receive reimbursement.

Currently the state organic program has no dedicated funds, however, PPPM remains supportive of Michigan's organic industry to insure compliance with state and federal laws. Michigan's law is important and will provide consumer confidence in organic products and production standards in Michigan.

AGRICULTURAL PRODUCTS/QUALITY ASSURANCE

Commercial Feed Program

PPPM regulates the manufacture and distribution of commercial animal feeds. PPPM also investigates reports of animal deaths or illnesses where feed may be implicated. This insures that appropriate actions to protect the food supply are taken. PPPM made 965 inspections of commercial feeds and the processes involved in their production, distribution, and storage. Inspectors contacted feed manufacturers, distributors, and others an additional 864 times to follow up on previous inspections and assist companies with compliance or to investigate complaints related to feeds. Inspections of feed manufacturing practices, the products, and their labels help to assure that animal feeds are marketed fairly and are safe for their intended uses. These inspections also help assure that the meat, eggs, and dairy products obtained from production livestock are safe and wholesome.

Through its routine surveillance activities, PPPM identified 273 feed law violations, which resulted in the removal of $64,958 worth of feed from distribution. Ninety-one (91) of the violations were identified through sampling. In 2003, PPPM investigated four complaints alleging feed-related animal deaths or illnesses, problems with feed quality, or adulteration. PPPM issued three warning letters for non-medicated feed violations.

The MDA Laboratory analyzed 789 samples of commercial feed with 60% of them in compliance. Samples consisted of livestock feeds, pet food, and wild bird feed. Of the 526 samples of livestock feed collected by PPPM inspectors in FY03, 254 failed to meet labeled analysis guarantees for an overall violation rate of 48%. Pet food sample results showed a much higher capacity to meet labeled nutrient guarantees. Fifty-three (53) dog and cat food samples were tested with only five samples (9%) failing to meet one or more labeled nutrient guarantees.

The MDA Laboratory Division's Seed Section analyzed the wild bird feed samples. MDA tested 210 wild bird feed products in FY03, with 154 (73%) in compliance. Products were examined for the presence of noxious weed seed with violations found in approximately 16% of the samples. The lab also determined the accuracy of ingredient declarations on these products. Approximately 6% of the samples were misbranded due to either undeclared components or because claimed ingredients were not present. Another 3% of the samples tested were violative due to misbranding and the presence of noxious weed seeds.

Medicated Feeds

Therapeutic and production drugs are commonly administered to livestock through their feeds. Therefore, PPPM monitors the manufacturers of these products closely for compliance with regulations designed to prevent unsafe drug residues in human food. PPPM conducted 89 inspections at 82 of the 113 feed mills in the state that manufacture medicated feeds, including six FDA-licensed establishments. No drugs were currently being added to feeds at 46 other feed mills inspected by PPPM. The purpose of these inspections is to determine a firm's level of compliance with federal good manufacturing practices regulations for medicated feeds. Approximately 38% of these firms were found with some minor deficiencies in meeting their requirements. As a result of PPPM's inspection activities, enforcement action was initiated against serious and repeat violators. These actions included one warning letter pertaining to labeling deficiencies.

"Mad Cow Disease" Prevention

On December 25, 2003, Mad Cow Disease was confirmed for the first time in the United States (US). The infected cow was from a dairy herd in the State of Washington. The cow was tested due to its non-ambulatory condition consistent with USDA protocols for the disease. It was further determined that the cow was born in 1997 in Alberta, Canada, before the implementation of preventative feed bans in both the US and Canada. Prior to this incident, BSE had never been detected in the US. An active USDA surveillance program is being credited with the detection of this cow.

Technically known as Bovine Spongiform Encephalopathy, or BSE, Mad Cow Disease is a progressive degenerative brain disease of cattle that is 100% fatal. At the present time, confirmation of the presence of BSE is possible only following an animal's death. BSE has now been confirmed in 27 countries worldwide. Today BSE is presumed to have a connection with a variant of Creutzfeldt-Jakob disease (v-CJD), the human form of the disease, which causes dementia and death. The Centers for Disease Control (CDC) reports in its fact sheet on new variant CJD that as of April 2, 2002, 125 cases of vCJD had been identified in the world: 117 from the United Kingdom (UK); six cases from France; and one each from Ireland and Italy. Almost all of the 125 vCJD patients had multiple-year exposures in the UK between 1980 and 1996 during the occurrence of a large UK outbreak of BSE among cattle.

The Food and Drug Administration (FDA) issued a regulation in 1997 prohibiting most mammalian protein products from being used as or in the feed of ruminant animals (e.g. cattle, sheep, goats, deer, elk, bison, and buffalo). The purpose of this regulation is to prevent the establishment and amplification of BSE in the United States through feed and in so doing minimize any risk to animals and humans. The regulation addresses the handling and use of any feed ingredient that meets the definition of so-called "prohibited materials" so that contamination of feeds intended for ruminant animals can be avoided.

PPPM inspectors have been inspecting feed manufacturing facilities throughout the state since 1998. Thus far, all of the state's renderers and livestock feed manufacturing facilities have been inspected at least once with 100% of those firms currently handling restricted protein materials in compliance with the regulation. PPPM conducted 95 BSE inspections in 2003. PPPM continues to inspect these firms on a regular basis to assure continued compliance.

Chronic Wasting Disease

Due to growing concerns about Chronic Wasting Disease (CWD), which, like BSE, is another transmissible spongiform encephalopathy, PPPM is working to make sure captive Cervidae herd managers are aware of and

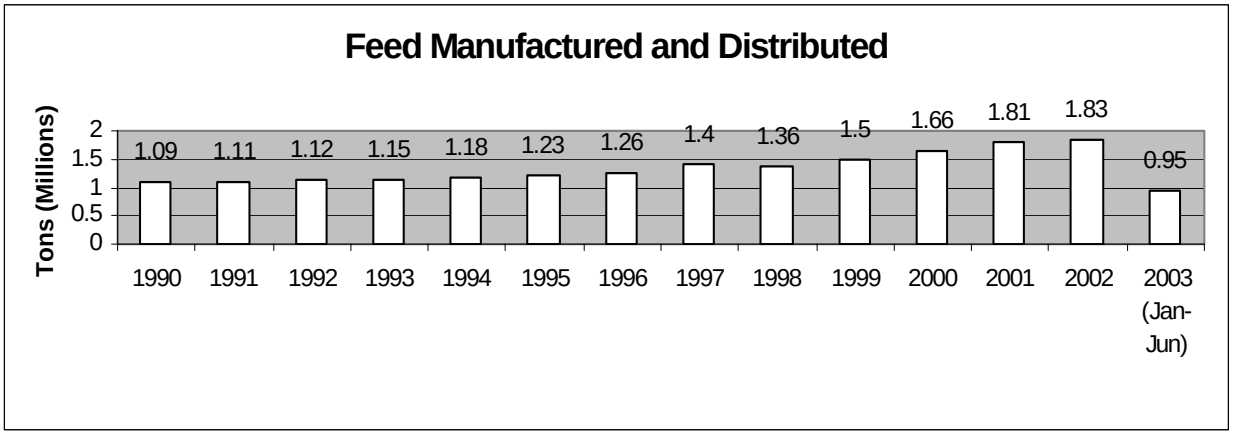
complying with those sections of the BSE regulations that pertain to ruminant feeders. Also, any operations that manufacture their own feed are subject to the same provisions of the BSE rule that apply to commercial feed mills. PPPM inspectors inspected nine captive cervidae operations for compliance with the BSE feeding regulation during 2003, finding them all in compliance.

Annual Feed Contaminant Survey

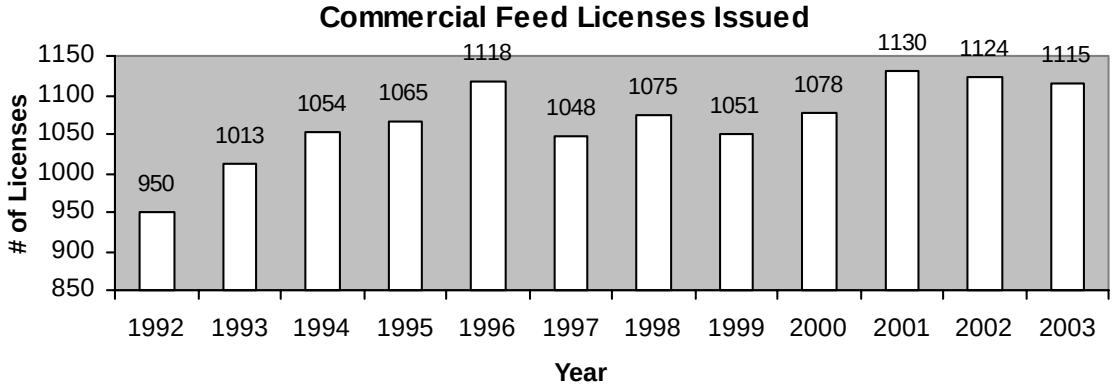
A partnership with FDA, that enables PPPM to survey animal feeds for pesticide residues, was expanded in 2000 to include testing for mycotoxins. This partnership is now in its seventh consecutive year. The information obtained is useful in determining if additional measures are needed to prevent harmful residues in human food. In 2003, 15 samples were tested for pesticide residues and seven were tested for mycotoxin contamination. The survey once again indicated that these feeds were well below FDA guidance levels.

Feed Manufacturing and Distribution Statistics

The total amount of feed manufactured and distributed in Michigan increased to a 13-year high of 1.83 million tons in 2002, up 0.76% from 1.81 million tons in 2001. The following graph demonstrates the general increase in commercial feeds and feed ingredients manufactured or distributed in Michigan over the past 13 years. Licensees reported 950,474 tons of feed through the first half of 2003 compared to 889,809 tons over the same period in 2002. This represents a 6.8% increase in manufacturing and distribution.



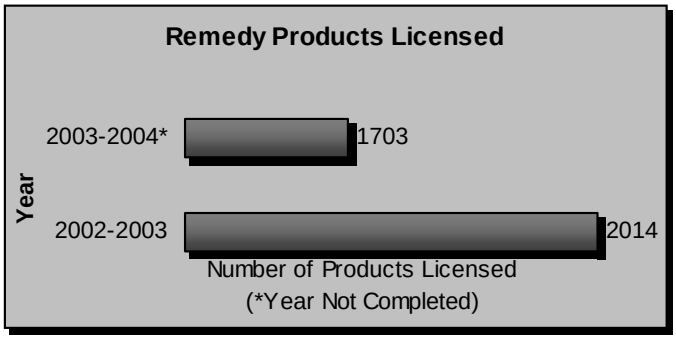
In 2003, PPPM licensed 1,115 feed manufacturers and distributors, a decrease of nine from the previous year.



Animal Remedies

Modern animal husbandry practices often demand the use of drugs and vaccines to prevent or treat diseases. These diseases can harm herd health and cause decreases in production. Unhealthy animals can also increase the risk of food-borne disease in humans. Likewise, a multiplicity of drugs and vaccines are used extensively by homeowners in the care of their pets. The objective of the PPPM Animal Remedy Program is to provide assurance that these drugs and vaccines are safe, properly labeled, and effective for their intended uses.

PPPM issued 2,014 animal remedy product licenses to 127 companies in the license year that ended June 30, 2003. As of December 2003, 1,703 product licenses were issued to 123 companies approximately six months through the license year that began in July 2003.



Plant Industry inspectors conducted 95 inspections checking for unlicensed or misbranded remedies, issuing 75 violation notices, and removing $16,964 worth of violative products from sale.

Elevator and Feed Mill Sanitation

Under the Grain Elevator Sanitation Program, PPPM inspectors help to assure that the conditions which can have a detrimental impact on the safety of Michigan's food supply are eliminated. In doing so, they help to prevent costly economic losses of grain and animal feeds to pests and other forms of environmental or chemical contamination.

During 2003, PPPM made 529 inspections to verify compliance with sanitation requirements in the 364 grain elevators and feed mills PPPM regulates. Through these inspections, PPPM helped to protect the wholesomeness of nearly 348 million bushels of grain and 490.3 million pounds of dry edible beans valued at $1.15 billion.

To improve compliance, enforcement efforts included the issuing of one warning letter and conducting one informal hearing for repeated inspection failures and failure to correct unsanitary conditions in a timely manner.

Seed Program

The objective of the seed program is to ensure that the seed purchased by Michigan growers and homeowners for planting purposes is of good quality and meets standards established in the Michigan Seed Law. The law includes minimum requirements for label information and standards for germination, purity, and freedom from noxious weeds. Through the seed program, PPPM also provides oversight of seed certification activities that ensure the genetic purity of plant varieties and other standards of quality.

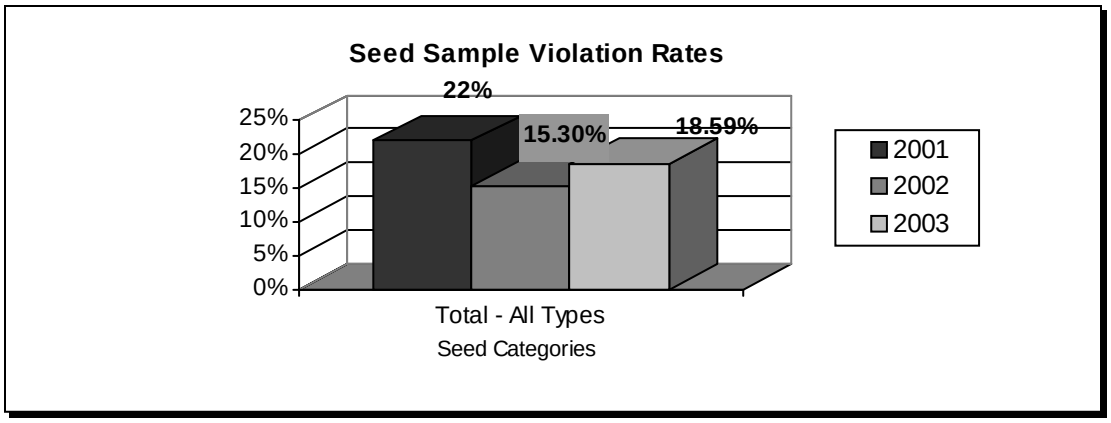
PPPM also assists USDA in assuring that seed companies comply with various federal seed requirements. The division participates in the enforcement of the Federal Seed Act by providing samples and documentation for seed shipped in interstate commerce. PPPM also provides samples of selected seed kinds to the USDA, which verifies varietal claims.

The seed program helps to establish fair competition for the more than 500 seed labelers and dealers who process and distribute agricultural and non-agricultural seed in Michigan. Recent statistics show that Michigan farmers spend nearly $296 million annually on seed in producing more than $1.42 billion worth of food and animal feed. These farmers benefit from PPPM's seed quality assurance program, while other state residents depend on this program for assurance that the seed they purchase for lawn and garden use is of reliable quality.

Regulatory Activities

PPPM conducts routine inspections that often include the sampling of seed products to determine whether or not they meet required standards and are labeled truthfully. These inspections allow for the interception and removal of violative seed products from the channels of trade before they reach Michigan farmers and homeowners. Inspectors issued 141 violation notices and removed $601,794 worth of violative seed products from the channels of trade during FY03. Warning letters were sent to 20 firms for seed violations. Following a review of their responses, informal hearings were held with two of the seed companies. PPPM also investigated one complaint regarding blight-infected Adzuki beans.

PPPM sampled and tested 925 seed samples including 239 lots of lawn/turf and mixed pasture seed, 5 lots of vegetable seed, and 681 lots of field or agricultural seed. Violations were found in 172 of the samples tested. The overall violation rate increased from 15.4% in 2002 to 18.5% in 2003.



Rhizomania

PPPM established a quarantine in 1992 to delay the introduction of beet necrotic yellow vein virus (BNYVV), a serious disease of sugar beets commonly known as Rhizomania. The disease was confirmed in several locations across Michigan's sugar beet growing area in the summer of 2002.

When PPPM established the Rhizomania Quarantine, the disease was causing serious problems within the sugar beet crops of several western states. The quarantine restricted the importation of propagative plant material and seed from susceptible species as well as soil from infested areas. This was important because Michigan dry bean growers relied heavily on bacterial blight-resistant bean seed from some of those same western states in order to produce healthy, strong-yielding crops here in Michigan.

In the fall of 2002, Michigan became the last of the major sugar beet producing states to detect BNYVV. MDA rescinded the quarantine on November 2, 2002. While in effect, the quarantine bought Michigan growers more than ten years of freedom from the disease. In that time, plant breeders developed resistant varieties that are now available to growers.

Seed Count

Many seed companies place information on their product labels that is not required by the Michigan Seed Law or regulations. Additional information that appears on agricultural seed labels, such as the number of seeds per pound of product or per bag, is intended to assist farmers in determining the correct amount of seed needed to achieve desired planting densities. In FY03, PPPM tested 319 of the agricultural crop seed samples it collected to determine the accuracy of these seed count claims. Seed count claims that are sufficiently inaccurate may cause the seed to be misbranded under Michigan's Seed Law. Through this testing effort, 13 products (4%) were found with seed counts that failed to meet their claims within recognized tolerances and violation notices were issued to advise the labelers of the discrepancies.

Seed Certification

Another function of the seed program is to provide oversight for seed certification activities. The Michigan Crop Improvement Association (MCIA), which is designated as the state's official seed certifying agency, provides a system for bringing high quality seed from outstanding field crop varieties to farmers and seedsmen. The certification concept is based on varietal purity, which is comparable to pedigrees in animals. It represents seed with the genetic potential to produce high crop yields and other desirable characteristics.

The seed program also oversees the certification of seed potatoes. This activity is conducted by the Michigan Seed Potato Association (MSPA) and is aimed at maintaining adherence to genetic purity and mechanical standards in seed stocks for both domestic and international use.

FERTILIZER AND LIMING PROGRAM

The fertilizer and liming program regulates over 600 manufacturers and distributors of over 1.4 million tons of fertilizers, soil conditioners, and liming materials for both farm and non-farm use. Michigan producers and industry rely on this quality assurance and consumer protection program to maximize yields and maintain a profitable agricultural operation. In addition, millions of state residents depend on this program to protect them from fraud when purchasing fertilizer for home and garden use. Because fertilizer is the most widely used agrichemical, is it important to provide a level playing field for individuals and businesses purchasing and manufacturing fertilizers.

Fertilizer Product Information

	1999	2000	2001	2002	2003
Fertilizer Facility Licenses	588	391	454	475	503
Specialty Product Registrations	3,351	2,900	3,153	3,346	3,680
Liming Materials Licenses	83	75	88	84	98

Registration/Licensing and State Marketplace Inspections

PPPM issues licenses and registrations for fertilizers, soil conditioners, and liming materials manufactured and distributed as part of a statewide fertilizer regulatory program. Inspection activities include conducting manufacturing and marketplace inspections, reviewing labels, sampling, and complaint investigations. The electronic reporting system used by staff aids this process by providing easy access to current registration data, uniform reports, and tracking capabilities for unregistered and misbranded fertilizer products sold in Michigan. During 2003, 439 contacts and over 350 inspections conducted by field staff resulted in 277 notices for fertilizer and liming materials found to be in violation of the fertilizer and liming laws. This resulted in the interception and removal of over $164,189 worth of violative fertilizer and liming products from distribution.

Sampling

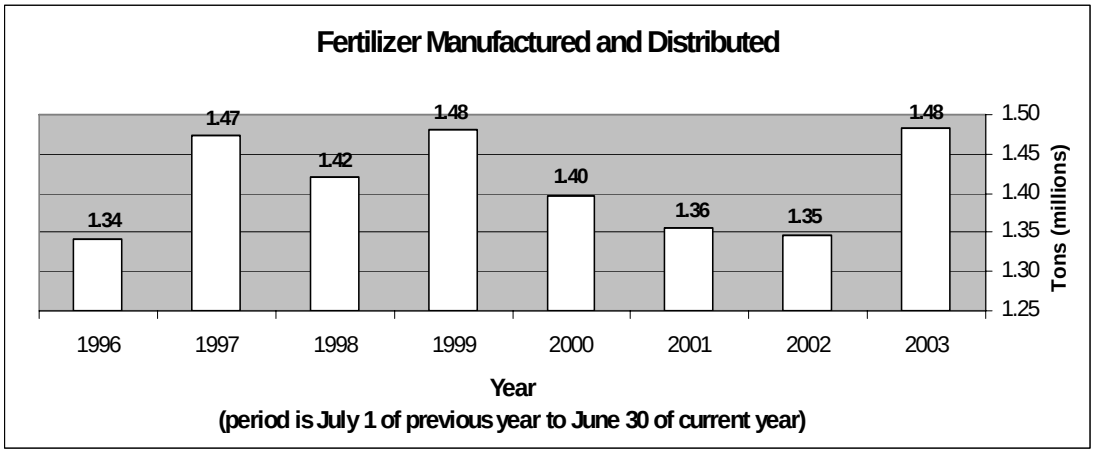
Each year, PPPM routinely samples a wide variety of agricultural and specialty fertilizers including dry and liquid manufactured products, dry and liquid custom blends, and compost. Samples are analyzed for total nitrogen, available phosphate, and soluble potash (N-P-K). Analysis results are then compared to the guaranteed analysis on the product label to verify if the fertilizer met label guarantees. Statewide, PPPM staff collected 622 fertilizer samples in 2003, resulting in 95 violations. This represents a violation rate of 15.3%, a significant decrease from the 20.5% violation rate in 2002. As part of activities to affect improved compliance, PPPM sent notices to firms with violative sample results and worked with these firms to review their blending and manufacturing procedures.

Prior to the 2003 spring blending season, PPPM issued 32 warning letters to manufacturers with significant fertilizer sample violation rates during 2002. In addition to responding to PPPM as to why the violations occurred and the changes the firm has taken to prevent their reoccurrence, these firms were also recommended to privately submit samples for analysis to ensure their corrective actions result in continued compliance. These actions had a positive impact; the 2003 violation rate declined 25% from 2002. Fertilizer samples provide relevant information about industry operations and help to make sound enforcement decisions that will ensure a wholesome food supply.

Fertilizer Manufacturing and Distribution Statistics

The total amount of agricultural and specialty fertilizers manufactured and distributed in Michigan increased in 2003 to 1.48 million tons, up 10.1% from 1.35 million tons in 2002. The following graph represents the quantities of

fertilizer and fertilizer ingredients manufactured and distributed in Michigan over the past eight years. Michigan producers depend on the efficient distribution of quality fertilizer to produce high yields of crops valued at over $2.1 billion.



Anhydrous Ammonia

Anhydrous ammonia is one of the key ingredients in the illegal production of methamphetamine. The wrongful use of anhydrous ammonia is of great concern to agriculture since it is widely used as a low-cost form of agricultural fertilizer. In Michigan, over 70 locations supply around 60,000 tons of anhydrous ammonia for agricultural use.

PPPM continued its partnership with state agencies and stakeholders to advise agricultural dealers and farmers on how they can help deter illicit use of anhydrous ammonia while protecting its safe, intended use. Projects included making presentations, holding press conferences, creating and updating Internet site information, and distributing brochures and mailings to agricultural related groups. A toll-free tip line for reporting the manufacturing, sale, and use of methamphetamine is available. Individuals can call 1-866-METH-TIP to report suspected manufacturing activities of this illegal drug.

Bulk Storage Program

The bulk storage program serves to assure the residents of Michigan that the environment and individuals are protected from any possible groundwater contamination due to the storage of agricultural chemicals. Similar bulk pesticide and bulk fertilizer protocols allow PPPM staff to conduct bulk fertilizer and bulk pesticide inspections during one visit and then to file only one inspection report for facilities with both types of storage.

Inspections and Enforcement

PPPM inspected 235 registered fertilizer and pesticide bulk storage facilities during 2003. Staff also conduct consultations with firms in the initial stages of bulk storage construction. Each commercial facility is inspected annually and is required to register the site and update information annually with PPPM. Accurate and complete bulk storage application information is essential for emergency and discharge response activities, product and site identification, and groundwater monitoring. PPPM staff also performs consultations with firms in the initial stages of bulk storage construction. Site visits are arranged with firms to discuss and provide site planning, containment, and recordkeeping assistance.

PPPM continues to work with industry in to ensure that all commercial bulk storage facilities in Michigan have appropriate containment. In 2002, the deadline passed for bulk storage facilities to be in compliance with all parts of Regulations 640 and 641. The results of inspections from 2000 to 2002 revealed that approximately 40% of the active commercial bulk storage facilities in Michigan did not have the proper structural containment. Firms with structural deficiencies were missing and/or had the wrong size secondary or operational area containment. Following this deadline, PPPM sent warning letters to 93 firms without the proper structural containment. As a result, a majority of these firms took immediate corrective action. Further enforcement actions of cease-and-desist-prohibited-conduct letters, informal hearings, and compliance agreements were used in late 2002 and during 2003 to bring the remaining violative facilities into structural compliance.

Product Safety and Identification

Emphasis was placed on the safety and identification of bulk pesticide and fertilizer products in 2003, with the intent to ensure agrichemicals are used for their intended beneficial purpose. Activities included: marketplace inspections, investigations, inquiries to verify types of storage at distribution centers, and cross-checking the Restricted Use Pesticide (RUP) registration list with the bulk storage registration list. Bulk storage regulations require facilities to provide reasonable protection of storage containers by use of fencing, lighting, and/or locks. Storage containers must also be properly labeled with the EPA registered label for pesticides and the guaranteed analysis and capacity for fertilizers. The efforts to improve product safety and storage by PPPM staff did not go unnoticed; the 2002 violation rate in this area was reduced by half in 2003.

Regulation 642: On Farm Fertilizer Bulk Storage

Regulation 642, On Farm Fertilizer Bulk Storage, became effective on August 13, 2003. This regulation applies to farms storing liquid fertilizer in tanks with a capacity greater than 2,500 gallons or a combined total greater than 7,500 gallons and establishes a statewide standard for the storage and handling of bulk liquid fertilizer on the farm. Farms with bulk fertilizer storage will be phased in over a five-year period and can use farm-specific designs that will meet requirements in a cost-effective manner.

Similar rules have been in place in Michigan since October 1999 for commercial fertilizer bulk storage facilities. Uniform standards for commercial and private sectors of Michigan agriculture will help ensure safe product storage and the protection of surface and groundwater. In the event of a tank or valve failure, the cost of containment can pay for itself, since producers are able to recover the product, prevent environmental contamination, and avoid the expensive clean-up costs associated with losing thousands of gallons of liquid fertilizer.

On Farm Demonstration Program

MDA provided cost-share and technical support in 2001 to assist 21 farms throughout the state to construct secondary containment facilities around already existing on farm bulk liquid fertilizer tanks. These on farm secondary containment demonstration sites follow the containment specifications in Regulation 642. The demonstration sites continued to be used during 2003 for educational purposes to illustrate a variety of fertilizer containment.

NURSERY PROGRAM

In the 2003 field season, PPPM staff inspected nearly 12,600 acres of nursery stock and perennials in support of an industry with estimated annual sales exceeding $710 million. Nursery inspections facilitate the sale of plant materials, such as hardy perennials, trees, shrubs, herbaceous perennials, small fruit plants, and hardy bulbs. Michigan nursery growers produce stock for sale within the state and also ship to over 30 states and many foreign markets. Through the inspection process, PPPM ensures that plant materials entering market channels are free of pests and diseases, as well as meeting requirements for viability, trueness to varietal name, and quality standards, such as those prescribed by the American Nursery and Landscape Association. Besides inspecting for pests and diseases, PPPM field staff also makes sure that production areas are free from weeds. For those plants destined for out of state markets, the commodity must meet the phytosanitary requirements of the receiving state.

Through the nursery program, PPPM conducted annual field inspections at the state's 2,313 licensed growers of nursery stock and perennial plants. In addition to the annual inspection, other specialized inspections may be required to facilitate movement of plants into the market stream, especially where quarantine pests may be present. Of primary importance are five major quarantine-significant pests: gypsy moth, pine shoot beetle, emerald ash borer, Japanese beetle, and black stem rust. All counties in Michigan are included in the federal Gypsy Moth Quarantine. All of the Lower Peninsula and seven out of 15 counties in the Upper Peninsula are now regulated under the federal Pine Shoot Beetle Quarantine. In southeast Michigan, 13 counties are now regulated for emerald ash borer under both federal and State of Michigan quarantines. Japanese beetle is the focus of several external state quarantines as well as the National Japanese Beetle Harmonization Plan. To certify plant materials for shipment outside the gypsy moth regulated counties, PPPM inspectors assure freedom from this pest through an egg mass survey plus the required annual inspection. In areas of high gypsy moth populations, PPPM also conducts additional checks in the spring for the presence of larvae that may be blown in from surrounding areas. The Black Stem Rust Quarantine applies to barberry and related species. Only approved resistant varieties may be sold.

Two incidents occurred in 2003 involving gypsy moth egg masses on Michigan-grown nursery stock and Christmas trees. This past year PPPM placed increased emphasis on educational efforts regarding the issue of gypsy moth

egg masses, especially for the Christmas tree industry. As in 2001 and 2002, PPPM emphasized loading yard inspections during the Christmas tree shipping season to prevent interstate shipment of this regulated pest, and thus facilitate interstate trade. The certification of nursery stock and Christmas trees complying with the federal Gypsy Moth Quarantine continues to be a major challenge for PPPM and the nursery and Christmas tree industries in Michigan.

Nursery Inspection and Licensing Facts

General Nursery Grower Licenses	1,633
Plant Grower Licenses	680
Total # of Growers Licensed	**2,313**
Nursery Stock Dealer Licenses	5,437
Plant Dealer Licenses	1,128
Total # of Dealers Licensed	**6,565**
Total Licenses Issued	**8,878**
Acres of Field Grown Stock Inspected	9,474
Acres of Perennial Plants Inspected	1,482
Acres of Native Trees Inspected	119
Acres of Container Stock Inspected	1,145
Acres of Scionwood Inspected	249
Acres of Seedlings & Transplants Inspec	120
Total # of Acres Inspected	**12,589**

Interstate Certification

Through the nursery program, PPPM certifies plant material for interstate shipment. PPPM field staff are responsible for ensuring that plant materials meet the quarantine requirements of the receiving states. Where appropriate, PPPM enters into compliance agreements with the growers and shippers whereby a systems approach is used to facilitate movement of the commodity. This past year, a total of 180 compliance agreements were issued and monitored by PPPM. With the removal of federal certification from the nursery license, PPPM has largely switched to issuing federal certification through a redesigned Certificate of Quarantine Compliance. In some instances, Michigan firms are authorized to imprint invoices or other shipping documents with federal and state certification.

This past season, PPPM issued 299 state phytosanitary certificates for interstate shipment of commodities. These included 289 certificates for propagative items and nine certificates for hay and straw. PPPM staff are fully using the electronic version of the Certificate of Quarantine Compliance. Due to its adaptability to more uses and increased accountability for commodities shipped, this certificate has largely replaced the state phytosanitary certificate for interstate shipments.

2003 Rose Evaluation Trials

For a sixth year, PPPM worked with Dow Gardens in Midland, Michigan and the Rose Society to conduct a rose grow out and evaluation trials project. The project was initiated in 1997 due to concerns raised by the American Rose Society, the National Plant Board, and several states regarding the increased occurrence of rose mosaic viruses and concerns about accurate labeling. Objectives for this year's trials included checking for trueness to variety labeling, grade accuracy, and evaluating for the presence of rose mosaic viruses.

PPPM staff obtained all plants from nursery retail stores throughout the state. The plants were grown out at Dow Gardens under the care of a staff horticulturist and a master gardener. A total of 120 rose plants were entered in the trials representing 12 varieties of ten plants each. Plants were evaluated for presence of virus on the basis of visual observation and laboratory tests. Laboratory testing using ELISA was incorporated into the evaluation. Laboratory tests were performed for two of the most common viruses encountered in the rose mosaic complex – prunus necrotic ring spot and apple mosaic virus. Only three varieties were found to be completely free of virus. In the remaining nine varieties, one or more plants tested positive or exhibited symptoms. Out of the 120 plants tested, apple mosaic virus was detected in 26 plants, representing 24.8% of the plants. Prunus necrotic ring spot was detected in 55 plants, representing 52.4% of the plants. This year we tested root and bud tissue at planting time in May. Results from the testing show that this process can be used to detect virus early in the season on dormant plants as well as later when the plants have matured.

PPPM will use this information to inform rose marketing firms of varieties exceeding the 10% level of infection. PPPM has begun to implement a new policy whereby specific varieties may be prohibited from sale in the state in succeeding years when found to be heavily infested, i.e. at or above 10% infection with viruses.

Export Certification

Under cooperative agreement with the USDA, commissioned PPPM staff members received training and authorization to issue federal phytosanitary certificates to facilitate trade in foreign markets. During 2003, PPPM staff issued federal phytosanitary certificates to facilitate the export of Michigan commodities shipped to nearly 50 countries worldwide. The vast majority went to our trading partners in Canada and Mexico, as well as to Europe and South America. Nearly 2,100 federal certificates were issued covering the following commodities: beans and grains, 1,085 shipments; fruits and vegetables, 59 shipments; logs and lumber, 263 shipments; and propagative commodities (plants, cuttings, seeds and bulbs), 645 shipments.

Apples to Mexico/Brazil

This was the seventh year that PPPM participated in a certification program to facilitate the movement of apples to Brazil. This was a cooperative effort between MDA, the USDA, Michigan State University, and the Michigan Apple Committee. The acceptance of this protocol by Brazil has opened another lucrative market for Michigan apples, bringing in additional income for apple producers. Due to the soundness of the procedures, Arizona officials also use this protocol for shipments entering their state.

This was the second year of an initiative whereby certain growers qualified to ship apples to Mexico. Criteria for qualifying included storing the apples in controlled atmosphere storage for a minimum period of time at temperatures just above freezing. When combined with appropriate pesticide treatments, this protocol assures complete freedom from apple pests regulated by Mexico. A total of nine treatment facilities operated by seven brokers and shippers qualified for this year's program.

U.S./Canada Greenhouse Certification Program

A total of three Michigan firms are enrolled in the US / Canada Greenhouse Certification Program. Qualified greenhouse growers may ship certain types of plants to Canada under a special sticker certification. Under this program, firms that produce herbaceous perennials, bedding plants, annuals, cacti, and some aquatic plants may qualify for use of a special export certificate for shipments going to Canada. Woody ornamentals are excluded. To qualify, the firm must have a documented pest management program, grow all the plants in a secure screened greenhouse, and maintain records of all shipments. PPPM's roll is to monitor the firm for compliance with the program. Firms that qualify are issued special serially numbered sticker certificates for attachment to shipping documents. This past shipping season an estimated 206 shipments were made by the three firms enrolled in the program.

Christmas Tree Certification

During 2003, PPPM field staff inspected 19,958 acres of Christmas trees for compliance with federal Gypsy Moth and Pine Shoot Beetle Quarantines. The annual wholesale and retail sales of Christmas trees by Michigan producers is valued at over $38 million, representing nearly 3.5 million trees. Of the 736 fields inspected, 95 percent were certified for shipment outside the state. Restrictions were slightly lower this year due to decreased incidents of gypsy moth found in hardwood trees at the perimeter of the fields. Approximately two-thirds of those fields were due to presence of gypsy moth egg masses, with the remainder for the presence of pine shoot beetle.

This past year marked the seventh year of participation in the Pine Shoot Beetle (PSB) Compliance Management Program for certifying pine Christmas trees. In 2003, 13 firms enrolled 52 fields in the PSB Compliance Management Program. Out of these fields, a total of 47 passed after meeting the program requirements. The remaining fields either failed to meet requirements or were removed from the program voluntarily by the grower.

SURVEY PROGRAM

Ralstonia solanacearum race 3 biovar 2

PPPM received official notification in February 2003 that certain Michigan greenhouses may have received geranium plants from a facility in Kenya infected with a quarantine-significant bacterium. Subsequently, PPPM contacted all firms identified as receiving plants potentially infected with *Ralstonia solanacearum* race 3 biovar 2. Geraniums from suspect shipments were restricted from sale until they could be cleared through inspection and testing.

PPPM staff inspected geranium plants at 57 firms and collected samples of plants exhibiting symptoms of infection. Samples were sent to the MDA-PPPM plant pathology staff at the Geagley Laboratory for initial identification to genus and species per USDA instructions. Those plants testing positive to genus and species were sent to USDA for further testing to determine the race and biovar of the bacteria.

A total of 13 firms were found to have plants infected with *R. solanacearum* race 3 biovar 2. USDA and PPPM oversaw the destruction of infected plant material and disinfection of greenhouses where positive samples were found. Two additional firms chose to destroy geranium plants in the absence of testing in order to reorder plants to meet spring market demands. All other firms meeting inspection criteria were released. The last destruction occurred on May 1, 2003.

On June 2, 2003, USDA informed PPPM that certain plants that tested positive for *race 3 biovar 2* were found to have originated in Guatemala. Twenty (20) firms in Michigan were identified as having received geranium plants or cuttings from the same source during the suspect shipping period. USDA contacted the receiving firms to determine the extent of the problem. No additional actions were necessary.

Karnal Bunt

This was the eighth year that PPPM participated in the Karnal Bunt National Survey. During 2003, PPPM staff collected 16 wheat samples from grain elevators in the wheat-producing counties within the state. The primary focus for the survey was local grain storage facilities storing wheat grown during the current season. All samples tested negative for Karnal Bunt.

Chrysanthemum White Rust *(Puccinia horiana)*

Chrysanthemum White Rust, *Puccinia horiana*, is a serious disease of chrysanthemum and is known to attack 12 species of chrysanthemum. The damage caused by this disease could be devastating to the Michigan greenhouse and nursery industry if this disease becomes established in Michigan. Recent interceptions of what is suspected to be chrysanthemum white rust in shipments from Canada are of great concern to the Michigan. An enhanced level of surveillance at the ports of entry into Michigan from Canada will reduce or alleviate the possible introduction and/or establishment of Chrysanthemum White Rust in Michigan.

PPPM conducted inspections of greenhouses receiving chrysanthemums from Canada, based on US Customs and/or USDA-APHIS-PPQ documents using the protocol provided by USDA-APHIS. A total of 228 sites were inspected by PPPM staff for Chrysanthemum White Rust and all of the sites surveyed were found to be negative.

Daylily Rust (Puccinia hemerocallis)

As the Michigan growers and dealers receive significant quantities of daylilies from the southeastern states of the US where daylily rust is known to occur, a detection survey was done at 97 locations with Daylily rust found in one location.

A new disease on daylilies, *Hemerocallis spp*., daylilies rust, was first found on daylilies in a nursery in the southeastern US in the summer of 2000. The rust was initially identified as *Puccinia hemerocallidis*, however, since then there have been questions regarding the correct classification of the species name. Daylily rust has been reported on a variety of daylilies and the perennial, *Patrinia*, is an alternate host of *Puccinia hemerocallidis*.

Daylily rust is native to Asia and was introduced into a southeastern nursery in the US through plant material originating from Central America. Currently this disease has been detected in Georgia, Alabama, Florida, and South Carolina. Because of its short incubation period and rapid spread, and due to the importance of daylily in the interstate trade, the New Pest Advisory Group sponsored by the USDA believes that this rust will be a serious pest of daylily and may also threaten the alternate host, *Patrinia* spp.

Dogwood Anthracnose (*Discula destructiva*)

Since the mid-1970's, dogwood, *Cornus* spp., trees in North America have experienced increasing levels of dieback and mortality from dogwood anthracnose, a disease caused by the fungal pathogen, *Discula destructiva*. Dogwood anthracnose is currently distributed in the eastern United States and along the Pacific coast. The origin of this pest is not clear. Although it is typically considered an introduced, exotic organism, it may also be a native fungus responding to changes in the environment.

Besides being valued as ornamental trees due to their showy flowers, dogwoods are also important understory species in older-growth forests and serve as food sources for mammals and birds. PPPM conducted a survey of dogwood nursery stock for the presence of dogwood anthracnose. Of the 63 nursery locations inspected, dogwood anthracnose was detected in two locations.

Hemlock Woolly Adelgid (*Adelges tsugae*)

A native of Japan and China, the Hemlock Woolly Adelgid (HWA) was discovered in Virginia in 1951 and has since become among the most destructive pests of eastern forests. The range of HWA in the eastern United States currently includes 15 states and extends from Georgia and South Carolina northeastward into New Hampshire. HWA feeds exclusively on hemlock, *Tsuga* spp., and severe infestations can kill trees in just two to four years.

Hemlocks are important pulp and structural lumber trees and are among the most cultured and cultivated conifers in the United States. Hemlock forests provide critical habitat for a variety of wildlife and support unique communities of plants, fish, mammals, and birds – several of which nest exclusively in hemlock. With no other trees capable of filling the hemlock's ecological role, the loss of these trees from the native landscape could mean the drastic reduction or loss of many of the species that rely on them.

Early detection is critical for eradication of HWA in the event of an accidental introduction in Michigan. To this end, a total of 111 locations were inspected for HWA and all surveys were negative. Michigan's Hemlock Woolly Adelgid Exterior Quarantine regulates all of Alaska, California, Oregon, Washington, and British Columbia, in addition to all infested counties in the eastern US.

Meadow Fleabane (*Inula britannica*)

Meadow fleabane, *Inula britannica*, was first collected in the United States in 1915 in Nassau County, New York. It was discovered in Michigan nurseries around 1990 in association with Hosta imported from the Netherlands. Meadow fleabane roots and rhizomes become intertwined with those of Hosta and can persist even when the Hosta rootstocks are washed.

Because of the popularity of Hosta and the large quantities of Hosta imported into the state, Meadow fleabane has a high-risk of potential introductions and establishment in Michigan, where it could become a serious pest of nurseries and landscapes. Of the 115 locations inspected statewide for Meadow fleabane, it was found in five locations.

Japanese Cedar Long-Horned Beetle *(Callidiellum rufipenne)*

Intercepted at US ports of entry frequently in the past 75 years, it was believed that the Japanese cedar long-horned beetle infested only dead or dying host trees. However, this insect was recently discovered feeding on healthy arborvitae, *Thuja occidentalis*, in Connecticut and eastern red cedar, *Juniperus virginianus*, in North Carolina.

The potential for introduction of this insect into Michigan poses a threat to the state's native and cultivated cedars, junipers, and arborvitae. To determine the status of this exotic insect in Michigan, a total of 204 locations were inspected statewide and all were negative.

Pine Shoot Beetle (*Tomicus piniperda*)

Since its discovery in an Ohio Christmas tree farm in 1992, the Pine Shoot Beetle (PSB) has spread aggressively throughout much of the Midwest and currently infests all of Michigan's Lower Peninsula and the eastern half of the Upper Peninsula. A native of Europe, PSB is a serious pest of commercial pines, feeding on developing shoots and stunting the growth of the tree.

Due to budget constraints, PPPM did not conduct detection surveys this year in the Upper Peninsula. Similarly, USDA cooperators cancelled their surveys due to time and budget constraints.

Plum Pox Virus Sampling

Plum Pox Virus (PPV) is a serious, exotic pest of stone fruits. PPV was not known to occur in the US before it was detected in Adams County, Pennsylvania in October 1999. Due to this detection, Canada declared a quarantine on all states, prohibiting the shipment of Prunus nursery stock into Canada, effective November 1999. If PPV is found to be in Michigan, its impact on the $65 million stone fruit orchard industry and the $10 million fruit tree and nursery stock market share this state currently holds will be very significant. The 2003 PPV survey in this state was appropriately adjusted to reflect the negative PPV results from the previous two years. Continued surveys of the high-risk sites in the state were conducted to determine whether or not PPV was present. The Michigan survey was part of the National PPV Survey.

The objectives of the PPV survey were the collection of leaf samples from high-risk sites.

PPPM collected and tested a total of 29,132 laboratory samples between the months of June and August 2003. The collection and testing of the samples were in accordance with the protocols provided by the USDA-APHIS-PPQ. Samples collected were comprised of peach, plum, apricot, and nectarine leaf samples from 1,261 acres belonging to 13 growers. All samples were negative for PPV.

During 2003, all budwood identified for use in the production of new stone fruit trees was sampled at the 25% level per the national protocol. Michigan's registered budwood was sampled at the 25% level, following sampling at the 100% level for the three previous years. Unregistered budwood was inspected and sampled at the 25% level. In addition, PPPM staff attempted to identify all orchards that had not been previously sampled so they would be included in the 2003 survey effort.

Swede Midge (Contarinia nasturtii)

Swede midge, *Contarinia nasturtii*, was detected in Ontario, Canada for the first time in 1996. All major cole crops, including cabbage, broccoli, and cauliflower are affected by the Swede midge. In Ontario, Canada damage levels in affected crops ranged from 10 to 90%. Swede midge larvae cause the seedlings to become twisted from the transplanting stage onward and a brown spot develops at the growing point. No head will be formed if the damage occurs at the button stage. The head will become twisted and asymmetrical if the damage occurs after the formation of the head. Wounds created by the larvae leave the plant at a greater risk of disease. In Europe, there are three to four generations in a year. The life cycle in Canada is unknown. Swede midge is not known to occur in Michigan. Considering the close vicinity of Michigan to Canada and the amount of commercial traffic from Ontario into and through Michigan, it became necessary for PPPM to inspect fields in southeast Michigan where cole crops are grown. PPPM conducted 120 inspections in cole crop fields located in six counties in southeast Michigan. Yellow sticky traps were set in the field according to the USDA protocol. All of the traps were inspected and found negative for Swede midge.

Sudden Oak Death (*Phytopthora ramorum*)

Sudden Oak Death (SOD) is caused by a fungal pathogen, *Phytopthora ramorum*. This pathogen has been found recently in California and Oregon and is also known to cause dieback of rhododendrons in Europe. At the present time, SOD has been detected in ten coastal counties in California and one county in Oregon. SOD is known to infect the following six species, belonging to two families: Coast live oak, black oak, shreve oak, and tanoak in Fagaceae (beech family) and California or evergreen huckleberry and *Rhododendron* spp. in Eriaceae (heath family). In oak, the infected stems develop bleeding cankers that produce reddish-brown or tar-black viscous seep. As the disease progresses, mortality is caused by cankers girdling the trees. In rhododendron, leaf spotting and dieback cause the damage. The Michigan nursery industry imports a large number of rhododendrons from the West Coast and most of the state has a high population of oak trees that PPPM has a responsibility to protect. For this reason it is necessary to conduct surveys to determine if this pest can be found in Michigan. PPPM inspected 193 sites and all were negative for Sudden Oak Death.

Apple Ermine Moth, Yponomeuta malinellus

In 2003, PPPM conducted an extensive survey to assure that Apple Ermine Moth (AEM), *Yponomeuta malinellus*, had not become established in Michigan. The PPPM work plan called for sampling orchards in the 19 major apple producing counties in Michigan at a rate of up to 20 samples per county. In addition, PPPM sampling focused on trees that were brought into Michigan from Washington and Oregon, where this pest has been found.

PPPM inspectors identified that trees in at least 28% of the locations sampled originated from Washington and Oregon. These orchards and nurseries were inspected visually in addition to the setting and monitoring traps. Upon evaluation of 354 sticky traps placed with pheromone to trap AEM, no evidence of AEM was found. PPPM found that a preponderance of trees that were sampled in west central Michigan originated from the states of Washington and Oregon. In other portions of the state, few trees from western origins were identified. Fewer samples were taken in counties with limited orchard resources. Cass, Kalamazoo, and Oakland Counties have limited areas suitable for fruit production. In these cases, although 20 samples were not taken per county, the industry in those counties was adequately sampled.

Potato Mop Top Virus

This disease was confirmed for the first time in the United States in Maine in August 2002. Potato Mop Top Virus (PMTV) is a soilborne virus in the pomovirus group and is transmitted by the fungus that causes potato powdery scab disease. PMTV may cause discoloration or necrotic rings on lines in infected tubers. Above ground portions of infected plants may show various types of mottling and stunting. Losses of up to 20 percent have been reported in sensitive cultivars as a result of reduced tuber production and loss of tuber quality.

PPPM facilitated a survey of certified seed potatoes in November 2002 to determine presence/absence of Potato Mop Top Virus (PMTV), which is not known to occur in Michigan. This survey was part of a national survey for Potato Mop Top Virus, the results of which will represent every certified seed lot in the United States. The national plan called for testing approximately 3,000 tubers per state. A total of 3,400 samples were taken in Michigan. Samples were collected through the Michigan Seed Potato Association and were processed through Michigan State University. The samples were obtained from 17 sites across 11 counties in the state. All test results were negative.

Invasive Noxious Weed Species

One of the more common invasive weed problems encountered in the nursery industry this past season was creeping yellowcress, Brassicaceae: *Rorippa sylvestris*. This perennial weed species was often found in the same nurseries that were experiencing problems with *Inula britannica*. The latter species was introduced into production fields as a contaminant in imported perennials, specifically Hosta plants from the Netherlands. Although creeping yellowcress is found in many states, the incidence in Michigan nurseries is attributed to imported perennials. Dutch growers refer to this species by the common name of *keek*, where it is problematic in fields. At least two states, North Carolina and Oregon, regulate creeping yellowcress as a “B” category noxious weed.

PPPM continued in its efforts to redistribute natural enemies of another invasive plant, leafy spurge. PPPM has established seven species of biological control agents in selected areas to help control this unwanted weed. This past summer, releases of *Apthona* beetles were made into a few secondary colonization sites in the Lower Peninsula.

Giant hogweed was found at two locations in the Lower Peninsula and one in the Upper Peninsula. The southern sites are localized infestations involving a few plants each. One site had previously been reported in a botanical publication. An inspector working on the EAB program found the second site while surveying. The infestation in the Upper Peninsula was reported too late in the year to launch an effective survey. A delimiting survey is planned for 2004 for the northern site. Eradication activities are also being planned with USDA staff to clear these sites of this noxious weed.

GYPSY MOTH PROGRAM

PPPM continues to rely on the key regulatory strategies for gypsy moth first implemented in 1994. These strategies include enhanced inspections, assessing defoliation levels, and assuring that regulatory treatments and preventative pesticide sprays (for fir, Douglas fir, and spruce) meet treatment requirements. Compliance monitoring, an integral part of these strategies, includes a check for proper application rates, correct spray timing, and use of approved insecticides. PPPM has implemented a new policy on inspection and certification of spruce, fir, and Douglas fir trees sold as balled and burlapped nursery stock – one of the commodities with increased risk for transport of gypsy moth egg masses.

Two regulatory incidents occurred in 2003 involving movement of spruce trees to non-regulated states. Spent gypsy moth egg masses were found on the stock after it had been transported to neighboring states, although no viable life forms were found and the stock was released. Later follow-up inspections at one of the destinations revealed viable egg masses. In both instances, the stock had been treated with approved pesticides according to USDA and PPPM guidelines. The two firms involved constitute the primary Michigan shippers of balled and burlapped spruce nursery stock that ship west of the Mississippi River. The nature of the spruce tree’s architecture makes it more difficult to thoroughly inspect all branches and, therefore, treatments are mandatory under PPPM policy. The few infested trees found may have been the result of incomplete spray coverage. PPPM is reviewing these incidents to determine how to best insure maximum treatment efficacy at the field level.

The 2003 gypsy moth suppression program saw an increase in acres treated to 20,200, with five counties participating, compared to 2,271 acres in 2002; and 5,947 acres in 2001. Treatments began on May 29 and were completed on June 6, 2003. All acres were treated with

Btk, a naturally occurring soil bacterium that specifically targets moths and butterflies. The Btk formulation used for this year's program was Foray 48F. This material was applied at the one-half gallon per acre rate and provided 24 BIU per acre. There was one contractor used for treatment of all cooperative acres treated under the state contract.

The summer 2003 aerial gypsy moth defoliation survey identified 72,085 acres as defoliated in the State of Michigan that could be attributed to gypsy moth. Gypsy moth populations have declined in the eastern United States, which appears to be opposite in the Midwest. Gypsy moth populations appear to be on the rise in Michigan, Wisconsin, and other surrounding states. Indications are that the 2004 Gypsy Moth Suppression program will see another large increase in acres and county participation. Reports of high gypsy moth populations have been reported from all around the state, including the Upper Peninsula, pointing to a general widespread increase of gypsy moth throughout the state. However, the gypsy moth virus NPV, *nucleopolyhedro virus*, and the fungus, *Entomophaga maimaiga*, have reduced populations in some areas by 90% or more. Fall egg mass surveys will provide a better indication of the population size and program to come in 2004.

EMERALD ASH BORER

The Emerald Ash Borer (EAB), a destructive insect, native to eastern Asia, was first discovered and identified in Michigan in the summer of 2002 in six southeast Michigan counties (Livingston, Macomb, Monroe, Oakland, Washtenaw, and Wayne), an area believed to be the initial infestation in Michigan. The borer presents an irreversible challenge to Michigan: control and eradicate the pest now, before it can move further, or it will kill all ash trees in Michigan and eventually, on our continent. Following the initial Michigan discovery, the beetle was also detected in Windsor, Ontario and northwest Ohio.

To control and prevent further spread of the pest, in July 2002 MDA quarantined the initial six affected counties, prohibiting the transport of ash trees and ash products from the quarantined counties unless chipped to one-inch in diameter or less. In addition, Michigan established an active Emerald Ash Borer Task Force to work toward controlling and eradicating this new threat, while minimizing damage. Members include: the Michigan Departments of Agriculture and Natural Resources; Michigan State University; and the USDA's Animal and Plant Health Inspection Service, and Forest Service; in cooperation with local units of government, and various industry groups, associations, and universities.

In August 2003, the quarantine was extended to include an additional seven counties (Genesee, Ingham, Jackson, Lapeer, Lenawee, St. Clair, and Shiawassee) surrounding the original six-county core of infestation in southeast Michigan. A federal quarantine was enacted on October 14, 2003. The pest has been detected in Maryland and Virginia and in areas outside the core infestation in Michigan. These infestations are attributed to artificial movement of nursery stock, firewood, and logs.

Regulatory Activity

Prevention of artificial spread of the pest is a priority. In 2003, MDA focused on enforcement of the quarantine to insure compliance. Regulatory activities included:

• Identifying and contacting firms and persons that may have artificially spread EAB, including nurseries, landscapers, firewood dealers, logging companies, utility companies, tree removal and trimming firms, municipalities and/or other government agencies involved with tree work, composting yards, and any ash material marshalling yards. In FY03, PPPM inspectors contacted approximately 7,300 of these firms/individuals.

• PPPM inspectors continue to investigate the movement of ash nursery stock, which is prohibited in Michigan's Lower Peninsula. They also monitor and survey the nurseries and surrounding areas for the presence of EAB. In 2003, 3,148 inspections were conducted.

• EAB staff routinely conduct inspections of firms or persons with EAB-related compliance agreements. Inspectors check to insure treatment and disposal methods are met, permits are used correctly, and record maintenance requirements are accurate. To date, no compliance agreements have been revoked or suspended because of failure to meet the compliance agreement.

• Regulatory staff conducted trace-back work for each EAB infestation found outside the generally infested area (outliers). To date, outlier populations of EAB have been due to the artificial movement of saw logs, firewood, and nursery stock. In cases where trace-backs have lead to violations of the quarantine, PPPM is prepared to prosecute firms and persons found to be in violation. PPPM is currently investigating three firms that have violated the quarantine, where prosecution appears evident.

• The Michigan quarantine restricts the movement of any

ash wood products outside of the infested core areas. Firewood outreach efforts were conducted on several occasions, including:

• Michigan International Speedway, Brooklyn, Michigan in June of 2003. PPPM distributed "Don't Move Firewood" information to fans attending the race and to campground sites located in and around the racetrack area reaching approximately 20,000 campers.

• Labor Day Weekend (September 2003) and the beginning of firearm deer hunting season (November 2003). Checkpoints were established at rest area locations along the major interstates leading out of the regulated areas. These events resulted in contacting over 3,500 motorists and the confiscation of more than 1,600 pieces of firewood.

• The quarantine allows for the movement of a regulated article outside the regulated area after a thorough examination of the regulated article and approved treatment measures have occurred. Currently nine firms or persons have been issued compliance agreements.

Control Activity

Eradication of EAB pest populations detected by survey activities outside of the infested core areas is a primary goal of control activities. The following was accomplished in 2003:

• PPPM identified 29 outliers (infestations outside the core area). Outliers were prioritized for removal, based on their distance from the pest management zones and other criteria.

• PPPM met with the Michigan EAB Task Force to review the criteria for removal of outliers, to insure that control recommendations were science-based and could be supported by members of the task force. It was decided that the most cost-effective and efficient measure to eradicate EAB is by tree removal.

The eradication process PPPM established is to:

1. Delimit and survey an outlier area.

2. Inventory and mark each and every ash tree 1-inch in diameter or greater.

3. Notify each affected property owner that has an ash tree on their property.

4. Remove all trees within a defined outlier area based on survey and delimiting information.

5. Plan on restoration to property owners affected by the removal of their ash trees.

6. Monitor each remediated outlier for the presence of EAB. Once the EAB control methods have received final approval, PPPM will incorporate the control methods and discuss control activities with local officials and the public.

• In the spring of 2003, PPPM eradicated a population of EAB discovered in the Tipton area. Working with researchers at MSU and USDA to determine the extent of the infestation, PPPM hired contractors to remove and dispose of approximately 1,000 ash trees. PPPM monitored the site throughout the summer and found no return of EAB to the area.

• PPPM assisted researchers from MSU and USDA at outlier sites located around the state, by establishing "trap trees", removing and peeling trees, collecting larvae, and monitoring EAB at outlier sites in St. Clair and Ingham counties. Monitoring of these sites continues, with the possibility of eradication in 2004.

Communications and Outreach

Timely, appropriate, and clear communication is essential as PPPM moves forward in the plan to control and eradicate EAB. In 2003 EAB communicators:

• Worked closely with organizations like the Southeast Michigan Council of Governments (SEMCOG) to host forums for legislators, elected officials, and other community leaders, as well as community information meetings.

• Conducted media outreach for the state's short-term eradication program efforts, including survey activities, outlier infestations, quarantine expansions, and pre-Labor Day and deer hunting season firewood checkpoints.

• Developed an educational outreach EAB tabletop display that was displayed at the 2003 Michigan State Fair, the Michigan Nursery and Landscape Association Field Day, and the Michigan Greenhouse Growers Association Exposition.

• Developed a communications plan for the outlier eradication program, including outreach to impacted residents, public officials, and the media.

• In late June, the EAB Task Force and Governor's Office in southeast Michigan hosted an EAB forum and tour for state legislators. Several legislators and/or representatives attended a briefing before boarding buses for a tour of local infestations and researcher sites.

• In mid-July, a round of meetings were staged for local elected officials and other influential residents in the survey area around the core to provide an update on the latest EAB-related activities and efforts. Dozens of meetings were held in southeast Michigan and counties with outlier infestations, detailing the EAB epidemic and the state's response.

• Media relations: press releases have been issued dealing with the state's eradication program and plans for 2003, survey activities, outlier infestations across the state, and the expansion of the State's quarantine.

• In cooperation with MSU Extension, an outlier communication protocol and response format survey form was developed for reporting new infestations outside the core area. The protocol/survey will ensure timely and uniform reporting of new infestations and information dissemination.

• Worked with PPPM regulatory staff and EAB partners to establish firewood alert checkpoints at key regional rest stops and welcome centers leaving the quarantined area on Labor Day weekend and prior to the beginning of firearm deer hunting season. Radio, print, and TV interviews were conducted to support the operation and to help further spread word of the quarantine.

• Developed a communication plan for the outlier eradication program to guide the process of outreach and coordination with impacted residents and local officials. The plan contains several components including a series of meetings for local government officials and impacted residents as well as regulatory crews handing out packets of information to property owners as they conduct ash tree inventories. All of the outlier eradication documents and resources detailed in the communication plan were created by the PPPM-EAB communications staff.

Disposal Program

By the close of 2002, EAB was established in over 2,400 square-miles of southeast Michigan, affecting about 650,000 landscape ash trees and an estimated 11,000,000 naturally occurring ash that were either dead or dying. As much as 50% of ash trees in the core area are dead or showing signs of decline. Numerous municipalities are faced with costly multi-year removal plans to eliminate the quantity of dead or dying ash.

In recognition of the size of the problem and the risk of spreading EAB if left unchecked, early in 2003 PPPM implemented the EAB Task Force recommendation for a no-cost disposal program. This provided an incentive to bring ash material to specific government-sponsored locations thereby assuring containment and control over the movement of the EAB infested ash. The program included establishing four "marshalling yards" within the EAB infested core area, which received and disposed all ash materials from municipalities, contractors, and private citizens at no cost. Upon arrival, the logs and brush were processed through a grinder into chips that are used to produce steam for electricity.

This marshalling yard pilot project provided two benefits:

1. It helped assure quarantine compliance by providing a disposal location for infested ash that was within the regulated area; and

2. It provided economic relief to all parties for the cost of disposal. In total, 38,563 tons of ash materials were ground and incinerated in the period of March through September 2003.

Success of this pilot program led to the following program for 2004:

• Long-term contracts for six or more yards to operate for 2004 and beyond.

• Marshalling yards were able to receive non-ash waste wood for which a fee was charged. The program is not designed to fund grinding of non-ash wood. This practice will help support development of long-term waste recovery operations beyond the scope of the EAB program and will provide immediate benefits to the community and the EAB program.

• Incorporation of value-added enterprises will be allowed provided that bark and associated sapwood are successfully removed. Sawing of lumber, railroad ties, and blanks for further processing into tool handles will be allowable under the new contracts. This provides benefit to the yard operators to help cover the cost of their operations, while at the same time removing that wood from the grinding operation, thereby reducing costs.

Survey

Gathering extensive, accurate, and timely data on the distribution of EAB throughout the Michigan is vital to the success of the EAB response project. To this end, PPPM initiated a survey program aimed at defining the extent of the EAB infestation in southeast Michigan and detecting outlying infestations beyond this generally infested area. During the summer of 2003, PPPM added nearly 60 new staff members to perform and manage survey activities for EAB at three offices in Lenawee, Livingston, and

Lapeer Counties. Surveyors follow survey protocol to inspect ash trees for symptoms of EAB at a density of one survey site per 10 acres while using GPS technology to navigate through survey plots and to record survey data. During the second half of 2003, surveyors logged 48,158 survey points, examined 300,000 ash trees, and covered over 600,000 acres (940 square-miles). In addition, PPPM inspectors throughout the state examined ash trees at over 1,500 nurseries, campgrounds, sawmills, wood-burning power plants, and new construction sites throughout Michigan. Further, the toll-free EAB Hotline received approximately 2,000 calls in 2003, resulting in the discovery of four outlier EAB infestations. Overall, PPPM documented approximately 25 EAB infestations outside the generally infested area in southeast Michigan. Analysis of statewide survey data provides critical information supporting decision-making in EAB control, regulatory, and communications programs, as well as providing continual direction for ongoing survey efforts.

BIOTECHNOLOGY AND PLANT PATHOLOGY

Scionwood

PPPM Plant Pathology is actively involved in improving the quality of pome and stone fruit trees in Michigan. This program is established at a large commercial fruit tree nursery. The nursery maintains 6,087 stone and pome trees in four scionwood orchards for certification of budwood for virus-free status. In 2003, 22.31% of 6,993 indexed trees developed viral symptoms while only 0.32 % of 11,707 trees that were tested for PNRSV and PDV using ELISA were positive for those viruses. Currently, 621 indexed trees are under observation in the PPPM greenhouse at the MDA Geagley Laboratory in East Lansing. In FY03, the nursery sold 332,065 certified fruit trees.

Blueberry Certification

PPPM conducts virus-free certification of blueberry plants to help growers obtain disease-free vigorous plants for export and planting. Under this program, the Plant Pathology Section used ELISA techniques to test 762 samples representing 190,000 plants in 27 varieties from two commercial blueberry nurseries. Tobacco Ring Spot Virus (TRSV) and Tomato Ring Spot Viruses (ToRSV) were detected in a few plants in the Sierra and Spartan varieties in the mother block of one grower and the infected plants were tagged for removal. Another sample of 330 blueberry plants collected late in the season from a third nursery/new grower in the program is being held in the MDA greenhouse and will be tested in the winter of 2004. Blueberries plants were not tested for shock and scorch viruses in 2003 as all plants tested in 2002 were found to be negative, an indication that these viruses are presently not in Michigan.

A number of blueberry growers have expressed interest in a fast and more reliable method for identifying blueberry varieties and we expect to offer this service beginning in 2004. Presently, PPPM Plant Pathology is making preparations, in collaboration with Michigan State University, to identify blueberry varieties using Polymerase Chain Reaction (PCR) technology.

Biotechnology and Plant Post-entry Quarantine (PPQ) Import Permits

To facilitate safe introduction of foreign genetic material to improve the quality of fruit trees and other crops in Michigan, PPPM reviews applications and issues import permits in cooperation with USDA-APHIS-PPQ. Under the PPQ program, 7,500 Hibiscus cuttings and 120 Hydrangea plants were released from post-entry quarantine. Currently, 25 Cheanomeles, 153 Hydrangea, 520 Rosa, and 15,000 Hibiscus remain in quarantine.

In 2003, PPPM, in agreement with USDA-APHIS, approved a total of 23 biotechnology permits for six companies and two research institutions in Michigan. Nine permits were for field trials studies, five for interstate movement, and nine were for both field trials and interstate movement. Biotechnology activities took place in 13 counties.

Dry Bean Testing

The dry bean industry is an important component of the Michigan economy. To maintain the quality of dry bean seed and meet seed certification and export requirements, PPM has been testing dry bean samples for seed diseases (anthracnose, common bean mosaic virus, and common bean blight). In 2003, PPPM tested 127 dry bean samples of which 75 were certified and 52 were non-certified. Six samples (8%) of certified seed and seven (16%) of non-certified seed were positive for bean blight. Five (17%) of 24 certified seed samples tested for common bean mosaic were positive for the virus. Pathology is researching the possibility of using the Polymerase Chain Reaction (PCR) method in order to make the detection of bacteria in dry beans faster and more accurate. The grow-out procedure currently used is slow and nonspecific, but is popular with some growers

and will be retained for a while. Michigan dry bean production remained depressed in 2003, however, statistical records showed improved prices in the year and industry officials predict improved acreage in 2004.

Seed Corn Certification

To enable the seed industry to meet seed corn phytosanitary requirements for planting and export, PPPM Plant Pathology processed a total of 293 seed corn samples representing over 13,000 acres from 33 growers for fungal, bacterial, and viral diseases in 2003. Samples were collected and delivered to the PPPM Plant Pathology Lab by PPPM field inspectors and Michigan Crop Improvement Association. Two of the seed corn fields submitted for certification tested positive for Stewart's wilt, *Erwinia stewartii*, while another 28 tested positive for Goss' wilt, *Clavibacter michiganensis* subsp. *nebraskensis*.

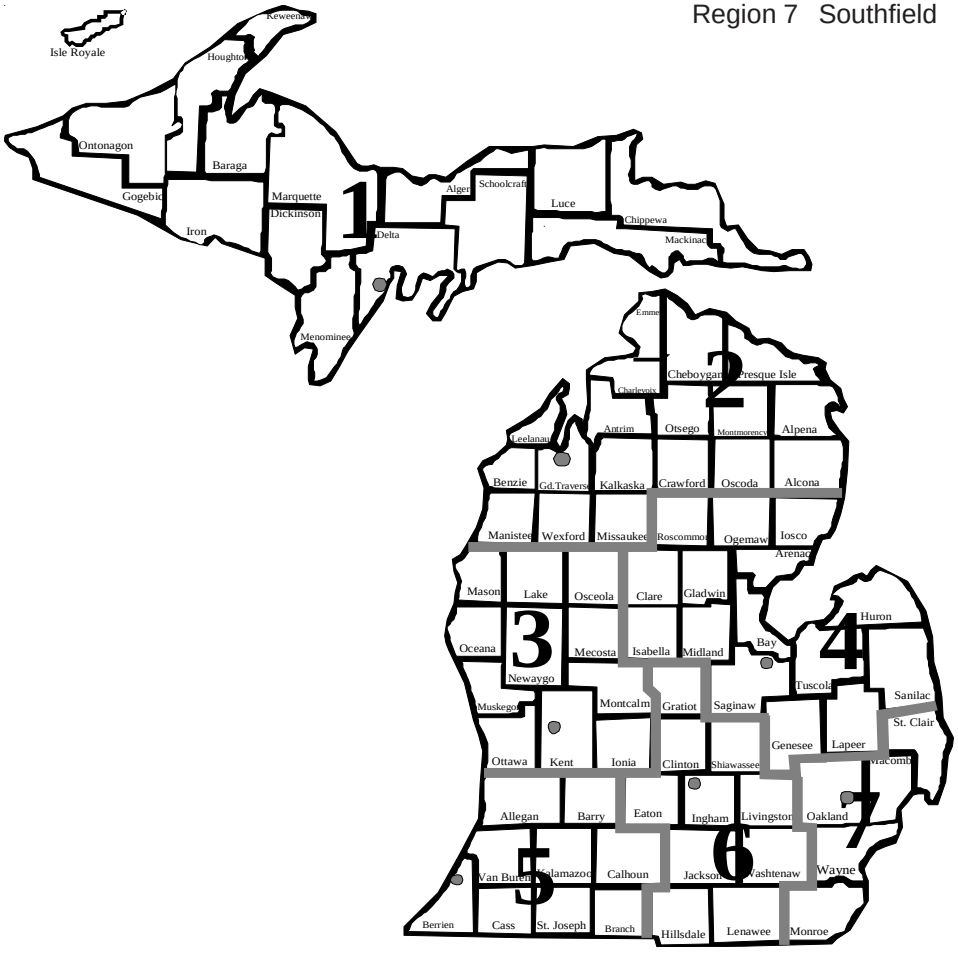
Soybean Cyst Nematode (*Heterodera glycines*) Survey

Since the presence of the soybean cyst nematode (SCN) has been confirmed in 31 counties in Michigan, the SCN survey was continued in 2003 to facilitate the movement of nursery stock and plant products for export. PPPM collected 305 nematode samples from 61 nurseries in 20 counties. In addition, 38 samples from seed potato fields in 8 counties, representing approximately 1,224 acres, were analyzed. Neither SCN nor golden cyst nematodes were found in the samples. However, high numbers of root lesion nematodes, which can be a hindrance to fruit-tree export markets, were found in samples from one nursery. MSU researchers worked with PPPM to identify an effective root dip treatment for root lesion nematodes.

More information...

For more information on this report or for questions on Pesticide and Plant Pest Management Division program activities, consult the MDA website at www.michigan.gov/mda, contact the division at (517) 373-1087, or contact your nearest regional office listed below.

Region 1	Escanaba	(906) 228-9998
Region 2	Traverse City	(231) 922-5210
Region 3	Grand Rapids	(616) 356-0600
Region 4	Saginaw	(989) 758-1778
Region 5	St. Joseph	(269) 428-2575
Region 6	Lansing	(517) 335-1830
Region 7	Southfield	(248) 356-1701



Michigan Department of Agriculture
Pesticide and Plant Pest Management Division
P.O. Box 30017
Lansing, MI 48909
517-373-1087, Fax: 517-335-4540

www.michigan.gov/mda